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Sir Theagaraya College

Vol. 9

JULY—SEPTEMBER 1959

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Our task ahead

The academic year 1959-60 began in an atmosphere of gloom and sadness. On Wednesday the 29th of July 1959, Sri M. K. Shanmugam, our former Principal, cast off his mortal coils and joined the select band of immortals. May his soul inspire and guide us in all our endeavours in the years to come!

Though rather sad and gloomy this year has brought us something new. With the consent of the University authorities and the Government of Madras the Pre-Medical Course was started in August last, with a strength of 117 students. We have to acknowledge here with grateful thanks the first steps that were taken by the late Sri M. K. Shanmugam to introduce this Course. It is indeed a pity that he is not with us to see his efforts bear fruit. All the arrangements necessary for the introduction of this Course were made in July last and we are glad to say that it is running efficiently.

While this year has its encouraging features, we have to admit that the future is none-too-bright. We may have to face many problems in the coming years and are determined to do so with courage and confidence. The first steps have to be taken for the introduction of new Degree Courses in Physics, Chemistry and Commerce, for only when the College is full-fledged can it attain financial stability. In all the tasks that lie ahead of us we look forward to the co-operation of the students of the College, past and present, and the generous and liberal-hearted people of the locality.

AT HOME AND ABROAD

by

P. NATARAJAN, M.A.,
Lecturer in History.

Nehru's Visit to Nepal:

Prime Minister Nehru reached Nepal on 11th June, 1959. He inspected a guard of honour presented by a contingent of Royal Guards. Mr. Nehru said that he had been invited by King Mahendra to visit Nepal when they met at the Kosi project site a few weeks earlier.

Our Prime Minister was given a reception by the Nepal-India Friendship Association. Replying to the reception the Prime Minister said that the two countries had no designs on each other. There was no issue between India and Nepal that might lead to a conflict of interests. He said that the task before Nepal was as great and difficult as that before India.

Speaking at a royal banquet held in his honour by King Mahendra and the Queen of Nepal, Prime Minister Nehru said that one could expand one's international relations, one could make new friends but old friends should not be forgotten.

Mr. Nehru addressed the Nepal Council of Asian Relations and World Affairs on 12th June, 1959. He said that the real differences in the world lay not between socialism, capitalism and communism—all children of the industrial revolution of the West—but between the developed and under-developed countries. Slogans, after all, were superficial and not as deep as thought. What was needed was deep thinking and not slogans. The World was changing all the time, but slogans remained the same. He warned that the pattern of life being woven out of the machine was utterly neglecting another vital aspect of life, the spiritual aspect.

The Prime Minister then addressed a Press Conference at Kathmandu on 14th June 1959. He said that there was concurrence, between India and Nepal in their approach to the Tibetan question. He further said that he did not envisage any threat to the India's frontier because of Tibetan developments. He made it clear that India did not intend taking the Tibetan question to the United Nations.

A Joint Communique was issued and it said that the Prime Ministers of India and Nepal were convinced that they could best serve the cause of world peace as well as their countries, interests by adhering to the policy of non-alignment with military groupings and by maintaining friendly relations with all countries. Prime Minister Nehru returned to Delhi in the afternoon of the 14th June, 1956.

Agitation in Kerala:

In response to the call by the Joint Action Committee consisting of the Congress, the P.S.P., the Muslim League and the I.N.T.U.C. for observance of a hartal in connection with the "Deliverance Day", a majority of the shops were closed on 12th June, 1959, in Kerala State, the first and the only Communist ruled State in India. Normal trading activity in the State came to a near-standstill. It was an agitation to end the Communist rule in Kerala. Elaborate police arrangements were made to prevent any untoward incidents.

The agitation took a serious turn on the 13th June, 1959, and it was reported that four persons were killed on the spot and another succumbed later to injuries sustained when the police opened fire on a crowd which was said to have attacked a police station at

Ānkamali six miles from Alwaye. There was also a clash between a crowd and the police on the 14th afternoon at Aroor, about 30 miles from Alleppey. The Police opened fire again in Kerala on 15th June, 1959, one at Pulluvila and another at Kochuveli, both in Trivandrum district. Mrs. Indira Gandhi, the Congress President, deputed the General Secretary of the Congress, Mr. Sadiq Ali to go to Kerala to study the situation in the strife-torn parts of the state.

On the invitation of the Chief Minister of Kerala, Prime Minister Nehru paid a visit to Trivandrum on June 22, 1959, to find a solution for the situation that had developed as a result of the anti-government agitation. The three-day discussions that Prime Minister Nehru had with various political parties and interests resulted in the emergence of certain agreed proposals. Certain tentative suggestions were made by the Prime Minister but he observed that an election was the only permanent solution for the trouble.

The Police opened fire again on July 3, 1959; the situation became desperate requiring the intervention of the Central Government. The Central Cabinet advised the President of India on July 30, 1959, to take over the administration of Kerala State under powers vested in him by Article 356 of the constitution to end the impasse there.

Accordingly the President of India, Dr. Rajendra Prasad, issued a proclamation on the evening of July 31, 1959 assuming to himself "all functions of the government of Kerala, dissolving the State Legislative Assembly; and directing that general elections for constituting a new Legislative Assembly for the state be held as soon as possible". This Presidential proclamation terminated the 27-month-old Communist Government of Kerala and the State Legislature where they had bare majority.

Dr. Rajendra Prasad :

President Rajendra Prasad arrived in Bangalore on the evening of the 14th June,

1959 from New Delhi on his way to Ceylon. He left Bangalore on the morning of the 16th June and reached Colombo on the same day for a six-day state visit. The Governor-General, Sir Oliver Goonatilleke and Mr. Solomon Dias Bandaranayake greeted and welcomed the President at air port. At the air-port the President said that he brought with him "the good wishes and the deep feelings of friendship and good neighbourliness from the people and the Government of India for the Ceylonese people". "These feelings", he added, "are rooted in the ancient and mediaeval history of our two countries. They have now been further strengthened by our common experience, common problems and common aims in this era of national freedom.....".

The President spoke at the International Buddhist Centre at Colombo on the 16th June and unveiled the replica of the statue of the Buddha at Sarnath, which he presented to the Centre. The President declared that mankind with all its achievements in the world of science and technology was in sore need of that spiritual element in its mental and moral equipment which only a message like that of the Buddha could give. He said that "Though Buddhism as an organised religion had ceased to function in the land of its birth, its principal tenets which had emanated from Indian thought and make-up had been re-assimilated in Hinduism and Buddha himself had been accepted as an avatar of Vishnu".

On June 17th, 1959 President Prasad addressed a special convocation after inaugurating the Vidyānāṁkara University for higher Buddhist ecclesiastical studies at Kelaniya. He said that although at present there were excellent facilities for Buddhist studies in India, he would very much like to see Indian students coming to Vidyānāṁkara to study and absorb the spirit of the University and equally he should like to see scholars from Ceylon going to Indian centres for studies. "Vidyānāṁkara", the President said, "is an old seat of learning hallowed by

a near-century of dedicated labour, freely given by wise and venerable men. The need for such a university has always been great but in these modern times, in the exhaustion and weariness of this speeding century a haven, however small, where the tenets and principles of such an entirely practical religion as Buddhism are studied and reflected upon, is of the greatest importance. Here in the peace and quiet of Vidyalankara, you can aspire to that wisdom which is the highest virtue of all". At the end of the function he planted a tree in the university premises to mark his visit.

President Rajendra Prasad laid the foundation-stone of a building in the heart of Colombo on the 17th June to house the International Cultural Institute of the Ramakrishna Mission Centre. The President said that to be associated with the Ramakrishna Mission in any capacity and its activities in any country was an honour and a privilege which anyone, subscribing to the high ideals of the Mission would greatly value.

Dr. Rajendra Prasad paid a visit to the sacred Buddhist city of Anuradhapura in the north-central province of Ceylon on 18th June, 1959. He saw the historical ruins in that city that tell the tale of bygone Sinhalese monarchs and the growth of Buddhism from pre-Christian era. He saw one of the oldest statues of the Samadhi Buddha, the Bo-tree nurtured from a sapling brought to Ceylon over 2,500 years ago and the Surumuniya temple built in the fifth century A.D.

Dr. Rajendra Prasad delivered the convocation address of the Ceylon University in Peradeniya on June 19, 1959. In the course of his address he said: "We want modern things for modern use. We want to become big every way. That can be achieved, only if you bring about a good mixture of the old and the new—a kind of synthesis of what we have achieved in the past and what we can get from the modern world".

The President returned to Bangalore on the afternoon of June 22, 1959.

Swatantra Party:

The formation of the Swatantra Party has evoked great interest not only in India but also in Europe and America. So far the Communists only have acted as an Opposition Party to the Congress rule. Now a responsible non-Communist opposition with a different economic philosophy from that of the Congress has come into existence. The Swatantra Party's aim is to champion the cause of the private enterprise and to preserve individual freedom in our country.

The new party has thrown out a challenge to the Congress programme of Socialism. It upholds the view that the individual, his economic rights, his civil rights, etc., should be safeguarded in a democracy. It believes that social justice and public welfare can be attained without depriving the individual of his *Swatantra*.

The Swatantra party claims to stand for the restriction of State enterprise in heavy industries in order to supplement private enterprises in that field. In agriculture it will stand for encouragement to the self-employed peasant-proprietor and non-interference with his rights of ownership, management and cultivation of the land. Time will show how far the new party will accomplish its purpose.

Mr. Kasturi Srinivasan:

We deeply regret to record the passing away of Mr. Kasturi Srinivasan, Editor, *The Hindu*, Madras on 22nd June, 1959. He was 72. He was the eldest son Mr. S. Kasturiranga Iyengar, Proprietor and Editor of *"The Hindu"*, Mr. Kasturi Srinivasan graduated from the Presidency College, Madras. The title of Padma Bhushan was conferred on him in January 1956. He rendered a very great service towards the renaissance and growth of karnatic music in South India. He took an active part in the establishment and functioning of the Madras Music Academy.

He was a fearless journalist. He was widely respected for his sincerity of purpose

and patriotism. No doubt in his death the country has lost an eminent journalist and editor. "As editor, he made 'The Hindu' of Madras one of the outstanding newspapers of the World". He had extremely lovable personal qualities. He was generous and kind-hearted and had innumerable friends, drawn from every walk of life. He was keenly interested in sports. In 1947, he started the "Sport and Pastime" to fulfil a long-felt need in sports journalism. May his soul rest in peace!

Our Revered Principal M. K. Shanmugam :

It is with feelings of deep sorrow we record the demise of our beloved Principal, M. K. Shanmugam. His death occurred in the early morning of Wednesday the 29th July, 1959. He was aged 51. He was a member of the Syndicate, the Senate, the Academic Council and the Board of Studies in English of the University of Madras. He was connected with a large number of literary, social and cultural organisations in the city of Madras. He was President of the Madras Students' Social Service League. A devout champion of the cause of teachers, he was President of the Association of University Teachers.

Mr. Shanmugam was every inch a gentleman. He was a man of genial temperament. He was a keen sportsman. He was popular among students and was greatly respected in educational circles. He was keenly interested in the development of fine arts, especially the drama.

The Theagaraya Educational Institutions remained closed on 29th July, 1959, as a mark of respect to his memory.

Professor M. K. Shanmugam was a student of the Madras Christian College High School and College. He served the Pachaiyappa's College, Madras, as Assistant Professor of English till 1947. Thereafter he served as Professor and Head of the Department of English in the Nadar College, Virudhunagar for three years. He was appointed Principal and Professor of English, Sir Theagaraya College, Madras, in 1950.

The students and staff of Sir Theagaraya College, met at 10 a.m. on 29-7-1959 and adopted a resolution placing on record their sense of sorrow at the passing away of this great man. The College remained closed on 29-7-1959 and 30-7-1959 in his memory.

Indonesia :

The Indonesian Army Chief of Staff, Lt. Gen. Abdul Haris Nasution imposed a ban on all political activity in Indonesia on 2nd June, 1959, following the failure of the Indonesian Assembly to adopt President Sukarno's "guided democracy" scheme. Gen. Nasution imposed the ban in his capacity as Central War Administrator. The political crisis in Indonesia was no army take-over as in Pakistan or the Sudan. Yet it was an undeniable fact that Ge. Nasution became the key figure in Indonesia.

Lt. Gen. Abdul Haris Nasution told at a Press Conference on July 1, 1959, that President Sukarno would play that dual role of head of State and head of Government in the next Cabinet. The constitutional position of the President would be the same as in the United States and Egypt. The President's "guided democracy" scheme would give him almost unlimited powers to govern by decree. Gen. Nasution said that in decreeing a return to the 1945 constitution, the President would be acting in a way according to the wish of the majority of the population.

President Sukarno dissolved on July 5, 1959, the Constituent Assembly and decreed the return to the Revolutionary Constitution of 1945 which had given him virtually dictatorial powers. The President made his historic announcement from the white-pillared Freedom Palace. He also decreed the formation of a provisional People's Consultative Congress to take over the task of Constitution-making from the Constituent Assembly.

President Sukarno announced on July 9, 1959 a new Indonesian Cabinet with himself as Prime Minister. Dr. Djuanda, the outgoing Prime Minister became the First

Minister and Army Chief of Staff. Lt. Gen. Abdul Haris Nasution became the Head of National Security and the Defence Ministry. President Sukarno now leads the 10-member Inner Cabinet as President, Prime Minister and Supreme Commander. There are no Communists in the Cabinet.

President Sukarno of Indonesia announced on July 30, 1959 the formation of a 45-man provisional Supreme Advisory Council—with himself as Chairman—and a 79-man National Planning Board, to help him rule under his "guided democracy" plan.

Singapore :

The new sovereign State of Singapore came into existence on June 3, 1959. The birth of the new State of Singapore brought to an end 140 years of colonial rule. However defence and foreign policy will remain in British hands. Singapore is a city state with a population of 1,500,000. The first Government of the New State of Singapore was formed by the People's Action Party. The first home-rule Cabinet of the new Commonwealth State of Singapore was sworn in on 5th June, 1959.

Mr. De Valera :

Mr. De Valera of Modern Ireland retired from active politics and resigned as Prime Minister. This was the result of the Presidential election. He dominated the Irish scene for nearly 40 years as leader of one of the country's major parties and also for 21 of these years as Prime Minister. He is now 77 years of age.

The Presidential election in Ireland was coupled with a referendum and it happened first in the history of Ireland. The main issue was the abolition of the existing system of proportional representation. The argument of Mr. De Valera was that proportional representation paved the way for governmental instability and that it would be better for Eire to have a single-member constituency system like the one that obtains in England. But the opposition parties were up in arms against this

move. In the constitutional poll held on June 20, 1959 the move to abolish proportional representation failed.

On June 18, 1959, seventy-six-year-old Eamon De Valera was elected President of Eire. The Irish electorates deserve all praise for having elected a man as President who "has symbolised Irish nationalism for more than forty years". He has done splendid work for Ireland. It was he who made Eire a Republic. He followed a policy of strict neutrality when Britain was dragged into the Second World War. "The election to the Presidentship marks a worthy culmination of a long, distinguished and honourable career. India rejoices in the honour due to one who has long championed her causes".

Dr. Fidel Castro :

Dr. Fidel Castro submitted his resignation as Cuban Prime Minister. Dr. Castro made the decision to resign "in the last few hours". The bearded, 31-year-old lawyer, Fidel Castro became Prime Minister on February 13, 1959 after his rebel movement had overthrown the regime of President Batista. Dr. Castro said that Dr. Manuel Urrutia, Cuba's President, had delayed the signing of new revolutionary laws and tried to make it appear that Dr. Castro was a Communist.

Cuba's President Manuel Urrutia dramatically announced his resignation on July 17, 1959. Dr. Urrutia, a quiet, 59-year-old Ex. Judge, whom Dr. Castro had brought back from exile to become President, said that he would step down. An emergency meeting of the Cabinet was called and the Minister in charge of the new revolutionary laws, Senor Oswaldo Dorticos, was appointed a Dr. Urrutia's successor. The Cabinet was reported to have rejected Dr. Castro's resignation and to have asked him to remain in office.

The Cuban Cabinet on July 19, 1959 called on the Prime Minister Dr. Fidel Castro, to resume his duties. Senor Oswaldo Dorticos, was sworn in as the new President.

MAUGHAM'S PHILOSOPHY OF LIFE

by

M. SREERAMULU, M.A., L.T.,

Principal.

Maugham is one of the brilliant novelists of modern times. He has also distinguished himself as a playwright. It has to be admitted that his plays and novels are extremely popular. Maugham has in fact made quite a lot of money from his writings and is now able to lead a quiet and pleasant life of leisure. Still there are many critics who say that there is nothing substantial in his works. They even wonder whether Maugham's plays and novels will gain lasting fame. The chief charge that they bring against Maugham is that he does not try to interpret life. In other words, Maugham does not give expression to his view of life in his works. It looks as if Maugham is answering these critics in the extract, "On growing old". In this selection Maugham tells his readers what he thinks of *old age, God, the soul and life in general*. From these views we understand that Maugham is a materialist. He is not convinced either about the existence of a supreme creator or the presence of the soul in the human body. He seems to believe sincerely that there is nothing after death. In this respect Maugham differs radically from the ordinary people of the world. But his conclusions are based on sincere thinking. We have to admit therefore that it is better to be sincere in one's views than blindly accept beliefs which are common to mankind in general.

In this extract Maugham first expresses his view on old age. According to him, it is better for an author who has reached old age to stop writing. Maugham says that every generation chooses its own authors and an author can serve only his generation best. For this reason, on reaching old age Maugham

leads a quiet, retired life. He lives more in the past so to say, than in the future. In some respects he is sorry for his past deeds. But he tries to make amends for them. Nowadays, he is more inclined to listen than to talk. He does not force his company on the young, for he knows that they cannot be quite themselves with him. In other words, he lives a secluded life but does not feel lonely in the least. He enjoys good health and is still sound in wind and limb. He is able to read with pleasure the works of Dr. Johnson, Coleridge, Byron and Shelley. He finds relaxation in reading modern detective stories. However, he derives the greatest pleasure in reading once again works of philosophers like Plato and Aristotle. It is for these reasons that Maugham does not feel lonely in old age. From his experience others can take a tip and try to model their lives on similar lines.

Maugham next takes up for discussion the belief in the existence of God. He says without hesitation that he does not know whether God exists or not. He has not been convinced by the many arguments that have been brought forward to prove the existence of God. According to Epicurus, belief must be based on immediate apprehension. This apprehension of God's existence Maugham has never had. Further, he fails to understand how there can be evil in the world if God is All Good. For a time he was attracted to the Hindu conception of God as a mysterious neuter existence without beginning and without end. But at present he thinks that this view of God is no better than an impressive fantasy. Maugham is overwhelmed with awe when he considers the

vastness of the Universe. But his imagination is not able to conceive a creator of the Universe. He takes the view that man cannot hope to solve the mystery of the Universe. The purpose and meaning of life remain dark as over to him.

Maugham's views on the human soul are extremely interesting. According to the Hindus, the soul takes its rise from the Absolute Reality and at last returns to it. According to the Christian doctrine the soul is created with the conception or birth of the individual. Maugham says that it is easier to believe the doctrine of Hindu faith. This belief explains the existence of evil for it supposes that evil is a punishment for past error. Christianity says that the soul is a simple spiritual substance created by God and immortal. In Maugham's view the soul is the personality within a man. This personality makes him conscious of himself. In other words it is the "self" within a person. This personality, in Maugham's view, is compounded of a man's thoughts and feelings. It is also influenced by his experiences and the accidents of his body

Maugham gives instances to prove how a man's behaviour towards others is affected by his circumstances in life. So he concludes that the soul cannot be a purely spiritual substance. He even goes to the extent of saying that the soul cannot exist in separation from the body for it is influenced by the accidents of the body.

Maugham concludes by saying that he has no desire to live his life over again, though his life has been pretty good on the whole. He wishes to die quickly and painlessly. He is not afraid of the thought that with his last breath his soul will dissolve into nothingness. He has taken to heart the words of Epicurus who said that a right understanding that death is nothing makes the mortality of life enjoyable.

Thus Maugham takes a materialistic view of life. He makes use of his brilliant intellect to understand many of the important things in life. Having come to certain conclusions, he expresses them clearly and frankly. There are quite a large number of men who do not agree with him but even they cannot question the sincerity of his views.

“Christabel” - An Appreciation

by

T. K. SUDHINDRAN, M.A.,

Lecturer in-charge of the English Department.

Coleridge is the most exquisite poet of the Romantic revival. The intensely imaginative quality, the wonderful power of suggestion and the creation of a suitable atmosphere as found in his poems mark him out as a fine poet of the romantic spirit. In leading us imperceptibly into strange and fascinating worlds, peopled by strange birds, mariners, mediaeval knights, spirits and witches, Coleridge succeeds in making us forget our drab world. We drift along with the poet into his world of mystery and enchantment. In this particular field he is supreme.

“The Ancient Mariner”, “Christabel” and “Kubla Khan” are the three great poems on which his fame as a poet rests. The poet considered ‘Christabel’ to be his masterpiece. However, posterity has given its verdict in favour of “The Ancient Mariner” as the most perfect of his poems. It is a flawless gem.

It has been the purpose of Coleridge to make the supernatural appear real. If in “The Ancient Mariner” the poet takes us to the Polar regions, in “Christabel” he transports us to the mediaeval world. The characters in the poem are mediaeval. The scene of the poem is a mediaeval baronial castle and the woods nearby. It is an age of ladies in distress, of knights, of fairies, ghosts and witches. The people of those times have believed in witches as they have trusted in the forces of good to save the virtuous. Thus the glamour of distance and romance and the enchantment of the atmosphere result in giving an appearance of reality to the supernatural. In a world different from what we know, in the dark ages, such incidents could have happened.

The story part of “Christabel” may not be quite logical. It does not reach a satisfactory end. The poem itself is only a fragment. Coleridge suggests the story by depicting a series of pictures like Christabel praying, the castle and the surrounding wood, Christabel's meeting with Lady Geraldine, her bewitching beauty etc. These rise before our vision and fade away making us feel fascinated. The

story itself is in the nature of a fairy tale and this method harmonises with the general scheme of the poem.

The most arresting feature of the poem is its atmosphere steeped in mediaevalism, romance and the supernatural. It is a different world altogether. Beautiful Lady Geraldine turns out to be a witch. Ghost of Christabel's mother wanders about the place. The old mastiff angrily moans in sleep. The full moon looks both small and dull. The dying brands shoot a tongue of flame. The time is night. Whatever light there is is dim. All is grey or white excepting for the green mistle toe, or the last red leaf or the blue eyes of Christabel. These colours only enhance the effect produced by the general absence of colour.

In the art of suggestion, Coleridge is a master. He does not describe anything in detail. There is no elaborate description of the scene or characters. With a few delicate touches he paints the scene and the characters. For instance the unbelievable beauty of Geraldine and the horrifying aspect of her when she unrobes herself are left to the imagination.

The effect produced by suspense in the poem is not worthy. The lovely lady Christabel is praying in a lonely wood at midnight. She hears a moan. We are left to wonder from where the moan came. The suspense thus built up is steadily heightened and all through the poem one is led to expect all that is strange and horrifying.

Coleridge uses words which are simple yet full of melody. Sometimes he uses archaic words and phrases that suit the mediaeval atmosphere of the poem and give it the quality of a ballad. He opens the poem rather abruptly and uses the method of simple questions and answers.

Coleridge has left the poem incomplete. Like “Kubla Khan” “Christabel” also is a fragment. But in the field which he has chosen for himself he is inimitable and to go through the poem is an unforgettable emotional experience.

The Comic Spirit in "Much Ado About Nothing"

by

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"Much Ado About Nothing" is a romantic comedy rich in mirth and laughter, wit and humour. Nowhere else does Shakespeare so clearly reflect the joyousness of the Renaissance spirit as in this play. Actually the scene is set in Renaissance Italy and the characters, situations and incidents are all Italian. But the atmosphere is unmistakably English. Shakespeare has represented in this play the zest for life that was so characteristic of Elizabethan England. Some of the incidents in the play are in a tragic strain but the predominant spirit is comic.

The comic spirit of the play derives mainly from the relations of Benedick and Beatrice on the one hand and the exploits of Dogberry and Verges on the other. Benedick and Beatrice are two vivacious, witty, talkative characters. But the interest in these characters is that though they are of the same nature yet they are perfectly individualised. In fact there is no need to read the names to recognise who speaks. In Beatrice keen intellect and overflowing animal spirits are combined. In her brilliant wit there is a vein of insolence. She is a sort of a termagant with a satirical humour directed particularly against Benedick. She has a quick eye to see what is ludicrous in man or woman. "I was born" she says, "to speak all mirth and no matter". The fun about Benedick consists in his laughing defiance of love and marriage, and his satirical comments on these subjects. His wit is however less pungent and his scoffs lighter than those of Beatrice.

With infinite skill Shakespeare has made these two lively beings the exact counterpart of each other. In their skirmishes each tries to outwit the other. Their jests and repartees are as humorous and witty as they are adroit. But it is significant that generally the victory is with Beatrice. Benedick seems to be no match for this sharp tongued woman. In this, however, Shakespeare is quite true to life; rarely indeed a man succeeds in a wit-combat with a woman.

Beat: I had rather hear my dog bark at a crow than a man swear he loves me.

Bene: God keep your ladyship still in that mind! so some gentleman or other shall, scape a predestinate scratched face.

Beat: Scratching could not make it worse, an 'twere such a face as yours were.

Bene: Well, you are a rare parrot-teacher.

Beat: A bird of my tongue is better than a beast of yours.

Bene: But keep your tongue, i' God's name; I have done.

In this abundance of lively raillery Shakespeare only reflects the delight that the courtly circles took in brilliant conversation. But the crowning fun regarding this quarrel—some pair is the way in which they are fooled into marriage. The aversion that each has for the other heightens the fun of making them love each other.

While the talk between Beatrice and Benedick provokes smiles, the deeds of Dogberry and his fellows induce hearty laughter. In the words of William Hazlitt 'Dogberry and Verges in this play are inimitable specimens of quaint blundering and misprisions of meaning; and are a standing record of that formal gravity of pretension and total want of common understanding'. Dogberry's conceit, and Verges's belief in him are like Bottom's conceit and his companions' faith in him in the "Midsummer Night's Dream". The introduction of Dogberry and his band, 'the shallow fools who brought to light' the villainy of Don John, is delightful.

We see high comedy in some of the situations also in the play. The most notable are the orchard scenes where the professed marriage-haters are tricked into loving each other.

Thus this variety of comic elements serve to lighten the gloom that is cast by Don John's machinations. The spirit of the play can best be described, in the words of Balthasar, as

"Converting all your sounds of woe
Into Hey nonny, nonny."

Thomas Hardy as a Tragic Artist

by

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Critic of Life:

The age in which Hardy lived was an age of science. There was then a sudden increase in man's knowledge of the material universe. In such a context naturally human nature by itself was of little importance. But Thomas Hardy, as an artist, took a keen interest in the study of human life and its relation to the Universe. As one aware of "the plethora growth of knowledge simultaneously with the stunting of wisdom", he presented a criticism of life as he found it.

Tragedy of Life:

Hardy believed that man's life was essentially tragic. He found that human existence was an endless conflict between man and a hostile Universe. Man was helpless before such an overwhelming force. It is significant that *Tess of the D'Urbervilles* should conclude with the remark that "justice was done and the President of the Immortals had ended his sport with Tess". In this respect Hardy's conception should be compared with the Greek ideal of tragedy. The Greek writer was also a fatalist; he believed in the will of the Gods who were hostile to man.

Defective Universe:

Hardy thus considered that there was something amiss in the laws governing human life. Whatever the power that governed it, it did not carry through 'to their logical conclusion the processes which it had initiated'. There was therefore a disproportion between human aspirations and their fulfilment. Clym thought that "he had been ill-used by fortune, so far as to say that to be born is a palpable dilemma, and that instead of men aiming to advance in life with glory they should calculate how to retreat out of it without shame". Then again there is the hint that the power

which made the Universe may be of a "lower moral quality" than our own. In other words, as Hardy puts it, "this planet does not supply the materials for happiness to higher existences."

Character:

It would be wrong however to suppose that man was a mere tool in the hands of this unseen and remorseless power; that he made no contribution at all towards his own final overthrow. Hardy was realist enough to observe that while the Gods themselves were remorseless, man too had his own weakness. Hardy's greatest characters, Tess, Henchard, Bathsheba, Eustacia, and Jude are victims of some fine excess in their respective natural qualities. This excess may not be a crime or a sin. But indeed it is a folly or an error of judgement which in no small measure contributes to their final disaster. Henchard's sale of his wife, Jude's unwise marriage to Arabella, Clym's silly infatuation for Eustacia are all actions which put them at the mercy of society. In such cases the tragedy becomes more poignant. If an exclusively irresistible force overthrows man, it becomes a mechanical process. On the other hand if the wicked man is punished for his wickedness, it is reduced to mere poetic justice. The essence of tragedy is that a potentially noble character is overthrown by some unguarded frailty. This happens in the tragedies of Hardy.

Love:

This defect of character found in Hardy's creations relates mainly to the "love-world". We have therefore to examine Hardy's treatment of love. He held that love was "the crucial ground where men and women stake everything". We find that his characters are engaged in a moral conflict with the powers

of destiny as revealed in their "love-world". These youngmen and women reject the normal pattern of life and struggle to attain a new form of existence. Marriage as a social contract is, in the words of Sue, "a hopelessly vulgar institution". The very names of the heroines—Bathsheba, Eustacia, Elfrida etc. sound more as those of sweethearts than of homemakers. Like Henchard they raise their eyes too high and their reward is despair and damnation. "Perhaps I spoil", uttered Jude, "one of the highest and purest loves that ever existed between man and woman". In these cases the error results in a surrender to impulse which inevitably produces unhappiness and tragedy. The truth is that these lovers seek an ideal world of their own and they fail. In other words in this tragic drama of love is represented the sharp conflict between the real and the ideal; and it is the irony of life that tragedy is always the result of this conflict.

The Chorus:

The peasants of Hardy serve as a chorus to the tragedy: but for them the tragic drama is likely to become a vision. In their company the activities of the heroes and the heroines are rendered realistic and earthy. Here again there is a parallel between Hardy and the ancient Greek dramatists. The mere presence of Joseph Poorgress or Granfer Cantle spreads an air of reality. These rustics represent the normal level of life in Hardy's tragedies. They accept life as it is and are never deceived by ideals as the heroes and the heroines are deceived. These rustics know well that the "Lord only concerns himself with born gentlemen" and that humble folk would do well "to keep out of the way of the Lord, for he is the lighter up of strange fiery lanterns, the bringer of famine and tumult". The value of the principal characters is thus enhanced by being set in this most realistic and "earthiest" company.

Nature:

An artist prepares a suitable background in order to increase the effect of his picture. Hardy's background for his tragic picture is nature. The streets of Casterbridge and the waste of Egdon are charged with an intensity and "tragic possibilities". In fact Hardy looked upon Nature as hostile to civilisation. This is nowhere so well represented as in the "untameable and Ishmaelish" Egdon Heath.

Tragic, not pessimistic:

Well would Hardy say,
 "As flies to wanton boys,
 are we to the gods,
 They kill us for their sport".

He saw humanity suffering and man breaking under the strain of his "plight of being alive". He showed man as a victim of ironic and malicious forces. But this is not the whole of life and Hardy failed to see it in all its aspects. Hardy is therefore criticised as a pessimist. But the truth is not this. In fact he himself resented this accusation. Actually he was intoxicated, as Webster was, with the poetry of human tragedy. He was not an impartial observer of human nature. But he was an interpreter or a critic of life who revealed the pettiness, the defeats, the misery and tragedy of man's lot. Thus Hardy interpreted the tragic side of life. But it is not right to call him a pessimist on that account.

Style:

"The whole secret of a living style", said Hardy, "and the difference between it and a dead style, lies in not having too much style". He believed in plain and straight-forward expression. His single sentences are sometimes stiff and clumsy. But he gathers force slowly through the length of a paragraph. He is at his best when he describes impressive landscapes, significant incidents and moods. As a tragic artist, if he was poetic in his thought he was poetic in his expression too.

The significance of the title "Resolution and Independence"

by

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As Wordsworth himself says, there are moments, when, from a state of of utmost joy, we might sink into a state of utter despair, for no obvious reason. Man's mind is so susceptible, that it takes on the hue of whatever it dwells on. A certain atmospheric effect, for instance, can render a man gloomy or cheerful. Or, at times, when the whole world is rejoicing, one might unaccountably experience a sense of stark desolation. This feeling of incongruity might affect one to a greater or lesser extent, in keeping with one's sensibility. A poet being exceptionally sentient, it is but natural that he reacts to impressions strongly. It is not surprising, therefore, that Wordsworth felt himself out of tune with things, and was filled with sad foreboding about his future.

The night before had been stormy, but the weather had cleared up, and the day dawned bright and cheerful. Birds sang joyously in the distant woods, hares ran races, and all the air was filled with the pleasant noise of waters. In such an atmosphere of joy, man should feel in tune too, being a child of nature himself, but, strangely enough, Wordsworth found himself in a disconsolate mood, vague fears and fancies haunting his thoughts. He was afraid, that his present happiness might not last, and a day might come, when he would have to suffer from solitude poverty and anguish. On a clear, sunny day, when the whole world rejoiced, there was no occasion for sadness. In the past, life's business had always been a summer mood to him, but, now, he asked himself whether this joy would endure. The thought of Chatterton and Burns discouraged him all the more. Both of them began their lives gloriously, but in the end came despondency and madness. Could what was true of them be true of him too? If was as if their very joys had led them on, like the will-o'-the-wisp, into the slough of misery.

At this juncture, as if from nowhere appeared the leech-gather, the oldest man who ever wore grey hairs. He looked so out of place on the moor, that the poet espied him with the same curiosity and wonder, with which one might look at a huge stone lying couched on the top of a hill. The man was bent double with age, as if some severe pain or illness had cast a weight on him. He stood at the margin of a pool supporting himself on a staff of shaven wood, motionless as a cloud, hardly noticing the presence of Wordsworth. Presently, he stirred the waters of the pool with his staff, absorbed in thought. Wordsworth approached him, taking care not to startle him, and wishing him good day, queried ingratiatingly, what he was doing alone on the moor. In simple, dignified language, which might have put the 'grave Livers of Scotland' to shame, he replied that he was making a living by gathering leeches. It was a tiresome and dangerous job, bristling with hardships. He had to wander from moor to moor in search of ponds where leeches abounded, but of late they had become scarce. Still he persevered.

The old man talked on until his voice sounded like the far off murmur of a stream. To the poet he seemed to be a figure in a dream, a visitant from another world, who had come to admonish him. The thought of pain, labour, and all the ills that flesh is heir to came back to his mind, but he felt now a new strength to bear them. This man, in the doddering infirmity of old age, plodded on through life, resolutely sticking to his precarious occupation against all odds. The scarcity of leeches did not deter him, for he was sustained by his faith in God and himself, and would rather die starving than be a parasite on others. Such resolution, and such a spirit of independence, so characteristic of the common folk, might ordinarily be overlooked. But to Wordsworth, it conveyed a message, which reaffirmed his faith in man and his unconquerable spirit.

The Tragic End of Amy Robsart

by

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Sir Walter Scott's "Kenilworth" is an interesting romance. In it the story of the countess Amy Robsart is most Pathetic. Poor Amy fell a victim to the intrigues and follies of the Elizabethan court,

Escape :

Amy Robsart was the daughter of Sir Hugh Robsart. Her beauty attracted the Earl of Leicester and he married her. But the ambition of the Earl to become the Queen's favourite made him keep his marriage with Amy a secret. So Amy was kept in secret at Cumnor place. The innocent lady did not know about all this. Later she realized that she was in the midst of a dangerous gang of villains headed by Richard Varney. So she fled to Kenilworth by the help of Wayland Smith. He was a trusted follower of Tressilian who was her lover formerly. This flight was perhaps responsible later for her tragic end. For Varney fabricated things and poisoned the Earl's mind against Amy.

Amy at Kenilworth :

The young countess reached Kenilworth in disguise and there she took shelter in Tressilian's apartment. Of course, at first, she did not know that that was his apartment. And from there she sent a letter to her Lord through Wayland Smith. To her ill-luck that letter was misplaced by Wayland Smith. Meanwhile, Tressilian met Amy, and Amy requested him to keep silent about her presence in Kenilworth for the next twenty four hours. Soon after Michael Lambourne entered her room and tried to dishonour her. Luckily Amy managed to escape from him and took shelter in a grotto. And there the Queen discovered Amy. Later the Queen held an enquiry in the presence of the Earl of Leicester and Tressilian. Amy at first had told the Queen while she was in the grotto

that the Earl of Leicester knew the whole story. But later she realized that her husband's safety was in danger and so she now said to the Queen that she did not know what she had said. The Queen took her for a mad lady. Now the clever Varney hastened to tell his story. He convinced the Queen that Amy was brain-sick. And all the while the Queen was made to believe that Amy was Varney's wife. The Queen left Amy for a time under the care of old Lord Hunsdon, one of her Kinsmen.

Husband meets wife :

Amy's sudden presence at Kenilworth was a bolt from the blue to Leicester. The Earl supposed only that his wife had given way to jealous impatience, being over-eager to take her proud place as the foremost countess in the land, and he was angry that she had broken his strict commands. The Earl then met her in disguise in Hunsdon's apartment and there his anger melted away beneath the sincerity of her affection. In spite of the repeated requests of Leicester to Amy to pass for the wife of Varney for a time, Amy said that she would do nothing that would dishonour her. Instead Amy pleaded with her Lord to confess the truth to the Queen. This brought a change of heart in her Lord. He was now prepared to acknowledge her as his countess to the Queen at all costs.

Treachery :

Varney now knew that there was danger for him in the reconciliation between Leicester and Amy. Something had told him to prevent that meeting between husband and wife. But they had now met. Varney's Villainy would come to light. So he decided that either he or she must perish. And he worked out his plan well. The first thing that Varney did was to poison the mind of Leicester against

Amy. He told many jealous things. He convinced the Earl by his skilful presentation of certain incidents that the connection between Amy and Tressilian was not above board. These words acted like poison on the Earl. And in a fit of jealous fury Leicester directed Varney to dispose of her. Varney then took Leicester's signet—ring to use it as a sign of authority. That night itself Varney got the Queen's permission to take the countess away from Kenilworth. Then Varney along with Foster met Amy and told her that it was her Lord's command that Amy should go with them immediately to Cumnor place. The unhappy countess after a moment of hesitation followed him.

Villainy exposed :

Meanwhile Leicester changed his mind and hastily wrote a letter to Varney commanding him not to proceed further in regard to the countess until he sent word again. And he sent the letter through Lambourne. Lambourne met Varney on the way itself and handed over the letter to him. Varney read the contents of the letter and felt that his position was in danger. But he was determined to destroy Amy. Later he wanted to say that he did not receive the letter. For that he should get rid of Michael. And so Varney killed him and robbed him of the letter.

Leicester wanted to take vengeance upon Tressilian. He summoned Tressilian for a duel and was about to kill him. At that time

a boy interrupted their fight. The boy begged Leicester to read the letter that was in his hands. It was Amy's letter to her Lord written from Tressilian's apartment soon after her arrival at Kenilworth. From this letter Leicester came to know the whole truth and realized that Amy was not blameworthy. He even went to the Queen and confessed the truth. The Queen though angry at first at his deceit later pardoned him. Further she made necessary arrangements to bring back Amy to Kenilworth in a fitting manner as the countess of The Earl of Leicester. She sent Tressilian and Sir Walter Raleigh to Cumnor place. But they arrived there too late to save the life of poor Amy.

The end of Amy :

At Cumnor place Amy was kept in Anthony's bed room where there was a trap—door. Amy awaited her husband's return. And she was listening for the low whistle which was always Leicester's signal whenever he came there. Now Varney determined to destroy her by means of her own affection for Leicester. So he went out and gave a low whistle. Amy took it for her husband's signal and in her eagerness to meet her Lord she stepped out of the room and the trap-door gave way. "There was a rushing sound—a heavy fall—a faint groan—and all was over." So ended the life of this unfortunate lady.

"Of one that lov'd not wisely, but too well."

SOME THOUGHTS ON EDUCATION

by

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Rightly did Bacon say, "Reading maketh a full man, conference a ready man, and writing an exact man." To become the leader of all nations, a country should become progressed in education and culture.

"The purpose of education should be to guide the growth of the individual in his own congenial sphere to his fullest potentiality, and not to curb and bend to suit a stereotyped ideal." What the individual makes of his educational opportunity, depends largely upon his individual capacity and initiative. Equal educational opportunity for all is a way in which the government helps the people to realise their fullest potentialities.

Malavya said, "Literature is the best medium for improving the character of a nation and by improving the vernacular literature, you will elevate the nation". Literature influences the readers' minds. The romantic poems of Shelley, Keats and Byron had their influence upon the people directly or indirectly. There is a close connection between literature and the contemporary life of the people and the chief features of the contemporary world.

Literature expresses life in words of truth and beauty. Great literature appeals to the spirit and not the intellect. Without literature, civilisation cannot flourish. It forms character.

"A good book is the precious life-blood of a master spirit" says Milton. Books are essential for a man to get education. We have to read and go ahead in search of great things in the world to create universal happiness. It is very necessary to build as many libraries as possible to spread education in India. The creative artist treats the subject according to his own taste or imagination.

Through books, we can learn much about the manners and habits of various nations. Civilisation has grown with the progress of education. Ocular witness of anything can never be forgotten and hence museums, motion pictures and dramas attract our attention.

India is a vast country with a rich diversity of cultural patterns and geographical and climatic conditions, adorned with a galaxy of beauty spots and centres of cultural and historical interest. Behind this splendid diversity, there is an underlying spirit of unity and oneness. Never before in the history of humanity was there such a great need and so much value for international exchange of ideas and cultures as now. The very future of humanity lies in the extent of mutual understanding and amity that we will be able to build up. We should not misuse the culture derived from literature. Every person should work for the progress of his nation.

India is remarkable for her cultural richness. The important feature of Indian culture is its emphasis upon self-control and its respect for the learned people. And a society will become pure when its members practise noble ideals.

One aim of education in ancient India was to develop the practical virtues such as diligence, obedience, and patience and manly virtues such as self-control. Another aim was to create respect for authority and traditions. To our ancestors, knowledge also meant the understanding of God. Thus the aims of education were both practical and spiritual.

Learning was always highly valued in ancient India and education was widespread. There

were many seats of learning in forest hermitages presided over by sages and Brahmin scholars. Taxila and Nalanda were seats of famous universities which provided instruction both in arts and science. Forest universities were then preferred so that the students might be free from the distractions of city life and would be able to concentrate on their studies. The subjects taught in these universities were not all connected with religion but they also included medicine and science. The fee that was expected from the student in return was his service to the family of the teacher. It was a period of severe discipline and discipleship. Dharma was the basis of all learning at that time. "Forest Universities were the representatives of the sublime idealism of India" says Dr. S. Radhakrishnan. The aim of self-realisation was most important then.

There were institutions of Brahminical and Buddhist origin. In the medieval, i.e. under the muslim rule, there was given some place for this method of education. When the English people assumed power in India, English was chosen as the medium of instruction.

The growth of university education in India in the British period contributed to a growing sense of national solidarity and independence and to the development of democratic ideals. The chief function of the educational institutions at that time in India was the 'making of a gentleman'.

The university education in India has become rather narrow in its scope. The economic condition of the Indians is such that the larger part of the students in the universities have to think of their education as a means to employment rather than edification. University education has tended to give a false idea of 'the gentleman' as one is removed from the masses of the people. With the increase in the number of students for study, there naturally grows the problem of unemployment.

Equal opportunity for education has been given as a right to the citizen in a modern

democratic country. Without education, man is nothing. When a man acquires real knowledge, he will become an useful citizen of a country. Intelligence, behaviour and moral ideals can be obtained through education. The citizen should not be illiterate. This right does not however necessarily mean that every citizen should have identical education. There should be a minimum level of education which every one must detain as a matter of right. In England, the Government have provided for compulsory primary education. By 1960, Madras Government also will introduce compulsory education in primary schools. Universal free education at elementary and secondary levels is one of the essential features of American democracy. Hence there is no illiteracy in the United States of America. There are practically no private educational establishments in the USSR. The great majority of the institutions are run by the state and instruction is free. A small number are run by public organisations.

University education in India, today, is in the melting pot. After independence, our leaders tried to reorientate many aspects of life including education. Since independence, India has had to deal with a large number of problems including educational problems. Educational problems should be allowed to be tackled only by educationists untrammelled by fear or favour.

Various recommendations have been made and numerous commissions, committees and advisory boards have been appointed to look after the progress in the educational system. One such was the appointment of University Education Commission under the chairmanship of Dr. S. Radhakrishnan in 1948 which recommended the adoption of the regional languages as the media of University instruction. This recommendation is criticised on the ground that the unity of the country will be affected when the regional language becomes the medium of instruction. The objections to this proposal are: (a) some of the Indian languages need to develop more

fully before they can be used as effective vehicles for the expression of the highest learning, (b) it will take considerable time to prepare the necessary books of general interest in the Indian languages concerned, (c) it may not be easy for sometime to find an adequate number of teachers who can teach technical subjects in Indian languages, (d) there are no corresponding words for technical terms in Indian languages and there is no prescribed syllabus and (e) people living in one state cannot seek employment in any other state.

The merits of the proposition, namely, the adoption of the regional language as the medium of instruction are: (a) students can learn things by their own effort, and (b) they can express their thoughts clearly and fully. The old order in educational system has changed yielding place to new patterns. In almost all the states, the regional languages have been adopted as the medium of instruction in the high school level.

Education ought to aim at a life-long programme of diverting the energy and enterprise of the youth into useful channels.

"The end of all education and all training should be man-making. The end and aim of all training is to make the man grow. The training by which the current and the expression of will are brought under control and become fruitful is called education." In the proper system of education, character is formed, strength of mind is increased, intellect is expanded so that one can stand on one's own feet. Thus the main purpose of education is to build the personality and character of man which is especially necessary in the existing complexity of modern life.

It is a well-known fact that the modern age is an age of scientific development coupled with a craze for material comforts. For this reason, there is conflict between science and literature. While literature humanises and spiritualises man and his emotions, science and scientific inventions try to dehumanise him. On the other hand, to neglect scientific study will be unpractical. The best system of education is, therefore, that in which a proper balance is maintained between scientific and humanitarian studies.

புதிய ஆத்திசூடி

by

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மிக விரைவிலேயே நாடு விடுதலை பெறும் என்னும் நம்பிக்கையுடனேயே உயிர் துறந்தார் பாரதியார். ஆகையினாலேதான் விடுதலை பெற்ற மக்கள் பாடியாநிம் பாண்மையில் அவரால் பாடல் கள் பல பாடப்பட்டிருக்கின்றன. அவர் காலத்தில் மக்கள் பெற்றிருந்த மன நிலை, இளைஞர்கள் வளர்க்கப்பட்டு வந்த முறை, பதிற்றுவிக்கப்பட்ட கல்வியின் நிலை இவற்றையெல்லாம் கண்டு கண்ணீர் விட்டார். விடுதலை பெற்ற நாட்டில் வாழும் மக்களும் இதே மனநிலை யடையரானால் பெற்ற விடுதலையைப் பேணி வளர்க்கும் ஆற்றல் அவர்களிடம் இராது என்பதைப் பாரதியாரால் காண முடிந்தது. இன்றைய இளைஞர்கள்தாம் எதிர்கால மக்கள் என்பதை அவர் அறிந்திருந்தார். ஆகையினாலேதான் அவர் தம் எண்ணப்படி குழந்தைகளைவளர்க்கக் கருதினர். 'ஒடிவீனையாடு பாப்பா' என்று தொடங்கி விடுதலை யடைந்த நாட்டில் பாப்பாக்கள் வளர்க்கப்பட வேண்டிய முறையை விளக்கி யிருக்கின்றார். இளைஞர்கள் வளர்க்கப்பட வேண்டிய முறை, அவர்கட்குப் பதிற்றுவிக்கப்பட வேண்டிய கல்வித்திட்டம் ஆகியவற்றின்மீது அவர் உள்ளம் சென்றது. அந்நாளில் சிறுவர்கட்குப் பதிற்றுவிக்கப்பட்ட கல்வியைப் பெரிதும் அவர் வெறுத்தார். 'அறம் செய விரும்பு' எனத்தொடங்கும் ஆத்திசூடியைச் சிறுவர்கட்குப் போதிப்பதை அவர் வெறுத்தார். சிறந்த கருத்துடையனவாக அவை இருக்கலாம், அவை இளைஞர்கட்குப் போதிக்கப்படலாமா என்பதில் ஐயமுடையவரானார். நாட்டையும் மொழியையும் காப்பாற்றும் உள்ளமுடையவராகும் நிலையில் மாணவருகை உருவாக வேண்டுமானால் புதிய ஆத்திசூடி தேவை யென்று அவர் உள்

ளம் கருதியது. ஆகவேதான் எதிர்காலச் சிறுவர் சிறுமியர்கட்கு உதவும் கல்வித் திட்டமாகப் புதிய ஆத்திசூடியை அவர் ஆக்கி அளித்திருக்கின்றார். ஒளவையார் ஆத்திசூடியில் காணப்படும் நீதிகள் இதில் இல்லாமலிருக்கலாம். நீதிகள் பல மாறுபாடுடையனவாகவும் இருக்கலாம். காலத்தைக் கருத்திற்கொண்டு இயற்றப்பட்டனவாதலின் இஞ்ஞான்றைய இளைஞர் உலகம் கற்றுப் பின்பற்றுகற்றரியவையாய் அவை விளங்குகின்றன. நீதிகளிலே சில காலப்போக்கில் மாறுதல் பெறவேண்டி யிருக்கின்றன. திருத்தம் பெற வேண்டியனவும் சில இருக்கின்றன. பயன்படாதன பல இல்லாமலும் இல்லை. இவற்றையெல்லாம் சீர்தூக்கியாராய்ந்த பாரதியார் இளைஞர்களின் உள்ளத்திற்கு எதிர்காலத் தேவைக்கு இவை யேற்கும் எனத் துணிந்து புதிய ஆத்திசூடியை அமைத்திருக்கின்றார். புதிய ஆத்திசூடி பழைய ஆத்திசூடியின் இடத்தைப் பெற வேண்டுமென்பது அவர் எண்ணம். எதிர்காலத்தில் நம்பிக்கை யுடையவர்கள் அனைவரும் அவர் கருத்தை ஏற்பார்கள் என்பதில் ஐயமில்லை. ஆனால் இன்னும் பழைய ஆத்திசூடிதானே பாடமாக இருக்கின்றது!

அச்சமே ஆசாரமாகவுடையது சிறுவர் சிறுமியருலகம். அதனினின்றும் முதலில் விடுதலை பெறவேண்டும் என்று கருதிய அவர் 'அச்சந்தவிர்க' எனப் புதிய ஆத்திசூடியைத் தொடங்குகின்றார். தவிர்க என்பதைக் கேட்டவுடன் எல்லாவற்றையும் தவிர்த்துவிடப் போகின்றார்கள் என்பதை நினைத்து 'ஆண்மை தவறேல்' என்று அடுத்து மொழிவராயினர். ஏதேனும் இடையில் குறுக்கிட

டால் போதும் அதையே சார்பாகக் கொண்டு தொடங்கிய செயலில் நிறுத்தி விட நினைக்கும்—நைந்த இளைஞர்களை நோக்கித்தான் அவர் அடுத்தார் போன்று 'இளைத்தல் இகழ்ச்சி' என்ற ரோதுவாராயினார். ஈகை மக்களுயிர்க்குத் தேவை யென்பதை ஒளவையார் உணர்ந்ததைப் போன்றே அவரும் உணர்ந்து 'ஈகை திறன்' என்பாடியிருக்கின்றார். 'காயமே இது பொய்யடா' 'நீறிற் சூமிழி இளமை', 'இளமையும்நில்லா யாக்கையும் நில்லா' என்பன போன்ற கருத்துக்கள் இளைஞர்கள் செவிகளில் படவும் கூடாது என்பது பாரதியார் கருத்து. இளைஞர் கட்டு வாழ்க்கையில் பற்றுத்தேவை, பற்று இன்னதென்பதை யறியாத உள் ளங்களில் நிலையாமையை விதைக்க வேண்டிய தேவையிலலை. இவற்றையுணர்ந்த பாரதியார் அடுத்து 'உடலினை உறுதி செய்' என்றும், 'ஊண் மிக விரும்பு' என்றும் கூறியிருக்குந் திறம் பாராட்டுதற் சூரிய தாகும்.

எண்ணத்தில் உயர்வு யாவர்க்குந் தேவைப் படுகின்றது. சிறப்பாக இத் தகைய உயர்வு இளைஞர்கள் உள்ளத்தில் இடம் பெற வேண்டும். இதனையே பாரதியார் 'எண்ணுவது உயர்வு' என்று இயம்பியிருக்கின்றார். அவர் காலச் சிறுவர் உலகம் அவர் கண்முன் ஓடி வந்தது. அவர்களின் குனிந்த பார்வையும் குறுகிய நடையும் அவர் கண்களைக் கலக்க முறச் செய்தன.

ஆகவேதான் அவர் அடுத்து 'ஏறு போல் நட' என்றார். ஐம்பொறிகளையும் அடக்க வேண்டும், அவற்றின் அடக்க மின்மையாலேதான் உலகில் எண்ணற்ற துன்பங்கள் இளைஞர்களை நோக்கி யெழுகின்றன. ஆகவே ஐம்பொறிகளையும் அடக்கியாள வேண்டும் என்னும் எண்ண

அச்சந் தவிர்க
ஆண்மை தவறேல்
இளைத்தல் இகழ்ச்சி
ஈகை திறன்
உடலினை உறுதி செய்
ஊண் மிக விரும்பு

மாவது இளைஞர் உலகிற்குத் தேவை என்பன போன்றவற்றைக் கருதியமை யால்தான் 'ஐம்பொறி யாட்சி கொள்' என்னும் அழகு மொழி யடுத்துத் தோன்றிற்று. ஒற்றுமையைப்பற்றிப் பாரதியார் கருத்தைக் கேட்க வேண்டுமா? 'ஒன்று பட்டாதுண்டு வர்ப்பு' என்று பாடியவர் இளைஞருள்ளத்தில் அதனை விதைக்காமலா விடுவர், 'ஒற்றுமை வலியாம்' என்று அடுத்து ஒதுவாராயினார். ஓய்வு என்ற பெயரில் பெரியவர்கள் முதல் சிறுவர் வரை அனைவரும் சோம்பலுடையராய்த் தேம்பித் தீர்கின்றார்கள். சிறப்பாகச் சிறுவர்கட்கு ஓய்வு தேவையிலலை. ஓடியாடி உலகத்தைத் தெரிந்துகொள்ள வேண்டியவர்கள் ஓய்வு கொள்வதென்? பரபரப்புடைய உள்ளமும், உறுதியு மல்லவா இளைஞர்கட்குத் தேவை? ஆகவேதான் 'ஓய்வு கொள்ளேல்' என வோதியிருக்கின்றார். உயிரெழுத்துக் களின் இறுதியை யடைந்த பாரதியார் இளைஞர் உலகைப் பார்க்கின்றார். வெந்த உள்ளத்தோடும் நைந்த உடம்போடும் அவர்கள் காட்சி யளிக்கின்றார்கள். நோயும்பாடியுமாக அவர்கள் கிடக்கும்நிலை அவர் உள்ளத்தை உருக்கிற்று. நோய்கள் மருந்துகளைப் பெருக்க, மருந்துகள் நோய்களைப் பெருக்க இவற்றிற் கிடையில் சிறுவர் சிறுமியர்கள் அகப் பட்டுமலும் அல்லல்க்கண்ட அளவில் அவரை யறியாமலே அவர் வாய் 'ஒளடதம் குறை' யெனக் கூறுவதாயிற்று.

இவ்வாறு படிப்படியாக இளைஞருலகை வளர்த்துக்கொண்டு வருகின்றார் பாரதியார். அவர் எதிர்கால இளைஞர்கட்கு வகுத்துத் தந்த கல்வித் திட்டத்தான் புதிய ஆத்திசூடி எனப்படுவது. இதனைக் கற்றுப்பின் பற்றுதல் இஞ்ஞன்றைய இளைஞர் கடன் என்பதைச் சொல்லவா வேண்டும்!

எண்ணுவது உயர்வு
ஏறுபோல் நட
ஒற்றுமை வலியாம்
ஓய்வு கொள்ளேல்
ஒளடதம் குறை.

అ భి న ం ద న ము

by

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[క్రియకులు మత్స్య శ్రీరాములు శ్లోక్, యమ్. ఏ, యల్. టి. గారు సర్ త్యాగరాయ కళాశాల అధ్యక్షులుగా నియమితులయిన సందర్భమును పురస్కరించుకొని వారి గౌరవార్థముగా 'శేర్పాటు చేయఁ బడిన కళాశాల అధ్యాపకవర్గ సమావేశమునందుఁ బరిపూరితముగా యభినందనపద్యములు.]

సీ. ఆగర్భశ్రీమంతు లని పేరు గాంచిన
'మత్స్య' వంశమున జన్మంబు నంది
రాజకీయఖ్యాతి రమణఁ గాంచినయట్టి
'పిట్టి' వంశమువారి పేర్కొని బొంది
సంఘశ్రేయంబుకై సర్వస్వదానుఁ డా
పమ్మి రామస్వామి నెమ్మిఁ జెంది
యాండ్లయథాపామహార్థ వంబునఁ బార
మిఁదినమప్పులు నెలమిఁ బడసి

గీ. సోదరాధ్యాపకుల గౌరవాదరములఁ
బడయఁ జాలిన యపరూపభాగ్యశాలి
వగుచు నేఁ డంది తీవు నమర్త రీతిఁ
ద్యాగరాట్కళాశాల కధ్యక్షపదవి.

క. ఒడ్డుంబొడ వగురూపము
దొడ్డతనము నెల్లరకును దోడ్పడుగుణమున్
ఎడ్డతనపుఁ జేతలకై
యెడ్డనిసువిశాలహృదయ మొప్పును నీకున్.

క. మన్నన యెఱిగినపలుకులుఁ
దిన్నని ఋజువర్తనంబు ధీరగుణంబున్
తెన్నవలెఁ గరఁగుమనసును
తెన్నగు నీ సొమ్ము లగుచుఁ జెలు వెనలాయున్.

శ్రీ. పలుకుతీయదనమె పరమాయుధంబుగో
రూపమహిమ యచ్చెరువును గొలుపఁ
జూపి చెప్పకుండఁ జూపులచేతనే
యెల్ల పనుల నిర్వహించె దీవు.

సీ. ఆంగ్లేయభాషయం దందినపాండితి
నీ దగురచనల నీటు గులుకు
సథలలోఁ జదివెడుసత్కావ్యపద్యాళి
తెలుపు నీపాండితిఁ దెలుఁగునందుఁ
దమిళులపోల్కినే తమిళంబు భాషించు
నాణెంబు నీ కబ్బె నాటనాట
విద్యార్థి తండంబు ప్రేమించెడుతెఱంగు
సాక్షి నీ బోధనాశక్తిగతికి

శ్రీ. సథలలో నీవు సలిపెడుసత్ప్రసంగ
జాతమే సాక్షి నీదువాక్పత్యురిమ కగు
నిట్టి గుణగణములె నీకుఁ గట్టె నేడు
త్యాగ రాట్కళాశాల కధ్యక్ష పదవి.

వీక్రమోర్వశీయము

by

VIDWAN, SRI T. KODANDARAMAIAH, B.O.L. (HONS)

Professor of Telugu.

కవికులగురువగు కాళిదాసు మహాకవి విరచితములయిన నాటకములు మాళవికాగ్నిమిత్రము, విక్రమోర్వశీయము, అభిజ్ఞానశాకుంతలము అను మూటిలో అభిజ్ఞానశాకుంతల మాత్రమే నాటకకళాప్రతిభకు శిఖరభూతము. దానికి దరువాత పేర్కొనఁదగిన నాటకరాజము విక్రమోర్వశీయము. మాళవికలో బాల్యావస్థయందు మాత్రమే యుండిన యీమహాకవి కళాపాటవము విక్రమోర్వశీయములో నిండుజన్మనముతో నెటులు కులుకుచున్నాడని యై శాకుంతలమున స్వర్ణమర్త్యలోకముల నేకము చేసిన తపస్వినీమతల్లి యై సంయుమననీధిని సాధించినది. ఈ నాటకములు మూడింటను శృంగారమే అంగి.

‘ఏకోఽపి జీయతే హస్త కాళిదాసో న కేనచిత్ శృంగారే లలితోద్ధారే కాళిదాసత్రయీ కిము.’

అని కదా అభాగము. అయినను వానిలో భేదములు కలవు. మాళవికలో రాచకన్యయు, విక్రమములో దేవవేళయు, శాకుంతలములో మునికన్యయు నాయికలు. అట్లే శోలిదానిలో కామనీధియు, రెండవదానిలో పుత్రోత్పాదన రూపధర్మమును, మూడవదానిలో పంపు రెంటితోపాటు పరపరిగ్రహపరాబృథితయు ధర్మదార పరిత్యాగానుశయమును బ్రదర్శితము లయినవి. వీనిలో విక్రమోర్వశీయము ఇటు ఒకచేయి మాళవికతోను, అటు మఱొకచేయి శాకుంతలముతోను గలుపుకొనుచు కాళిదాసుని కళాకాశలమునకు నడిమి సోపానముగా నలరారుచున్నది. ఇందలి పద్మరచనాశైలియు, వస్తునీలన విధానమును నివేదయమునే తారకాణించుచున్నవి.

మాళవికలో అగ్నిమిత్రుడు ఇరావతికి పాదాక్రాంతుఁడై యామెకు క్షమాపణ చెప్పకొనఁగా విక్రమోర్వశీయములో పురూరవుఁడు కాశీరాజపుత్రి అయిన బౌసినరికి పాదాక్రాంతుఁడయి క్షమాపణ చెప్పకొనినాఁడు. మాళవికలో ధారణీదేవియు, ఇరావతియు మాళవికావివాహమున కంగీకరించినట్లే దీనిలో కాశీరాజపుత్రి ఊర్వశీ సంగమమున కంగీకరించినది. మాళవికలో విమాషకుఁడు నిదురలోఁ గలవరించుచు రహస్యమును భంగపఱపఁగా

దీనియందు విమాషకుఁడు జాగ్రదవస్థలోనే కలవరించి భంగపఱచినాఁడు. ఇట్లే విక్రమోర్వశీయమునకు శాకుంతలముతోఁ గూడ కొన్ని పోలికలు ఉన్నవి. శాకుంతలము ప్రథమాంకములో చెలికత్తెలతో భూలమొక్కలకు నీరు పోయుచుండిన శకుంతలను దుష్కంతుఁడు చూచిన సన్నివేశమును, హేమకూటముపై చెలికత్తెలతో ఉన్న ఊర్వశీని పురూరవుఁడు సందర్శించిన సన్నివేశమును నెంతో చక్కఁగా సరిపోలుచు నత్యంత సన్నిహితములుగా నున్నవి. శాకుంతలములో శకుంతల సవ్యాజముగా దుష్కంతుని వీక్షించుచు నిష్క్రమింపఁగా ఇందును ఊర్వశీ సవ్యాజముగా పురూరవుని వీక్షించుచు నిష్క్రమించును. ఇటు ఊర్వశీకి అటు శకుంతలకు హృదయ వ్యక్తికరణమునకు ప్రణయలేఖయే సమానసాధనము. ఒకరికి భరతుని శాపము, మఱొకరికి దుర్యాసశ్వాపము. రెండును తమప్రియుని గూర్చిన తడేకధాన్యనమువలన నుదయించిన ప్రమాదమును బురస్కరించుకొని తటస్థించినవే. రెంటును నాయకు లయిన పురూరవకుష్కంతు లీరువురకును నింఢ సఖ్యము, దేవసహాయము సమానధర్మములు. రెండు నాటకములయందును నాయకు లనపత్తితకయి పడిన వేదన తుదకు బుత్రసమాగమముతోను, పుత్రాభిషేకముతోను పరిసమాప్తి చెందినది. ఇటు కథాకల్పనము నందును, వస్తునీలన విధానమునందును బోలికలు కలిగి యుండుట మాత్రమే కాక కొన్ని వాక్యములు వాక్యములే ఊర్వశీయమునుండి శాకుంతలములోనికి నుద్ధృతము లయినవి.

విక్రమోర్వశీయములో కాళిదాసు కావించిన ప్రకృతివర్ణన మనోజ్ఞ మయినది. మహనీయ మయినది. ప్రేమికుల హృదయములపైఁ బ్రకృతికిఁ గల ప్రభావ మెట్టిదో కాళిదాసునకుఁ దెలిసినట్లుగా మత్తెవ్వరికిని దెలియ దనుట యతిశయోక్తి కాదు. ప్రకృతి యనఁగా అనంతరహస్యముల కాణాచి అని కాళిదాసు అభిప్రాయము, అందలి చతుర్థాంకములో విరహోన్మాదుఁడయిన పురూరవుఁడు గంధమాదన మను నరణ్యములో ఊర్వశీ నన్వేషించుచు విలపించినట్లుటమును బరిశీలించినపుడు

ప్రకృతిదేశత విషణ్ణమానవహృదయముపై జాలిగొని కన్నీరు కార్చు నన్నసత్యము వ్యక్తమగుచున్నది. ఇందులో పురూరవుడు ప్రకృతిలోని భాగములయిన మేఘము, పద్మము, నెమలి, హంసము, చక్రవాకము, శుమ్మెద, వీనుగు, పర్వతము, నది, జంక అనువానిని సంబోధించుచు ప్రీత్యావృత్తాంతమును చెలుపుచు దీని వాని నదిం చును. దీనిబట్టి మానవుడు ప్రకృతిలో సంతోషము నెఱపఁ గలఁడనియు, జాలి గొలుపునటు తనకష్టములను దెప్పు కొనఁ గలఁ డనియు కాళిదాసుభావ మయినట్లు మనకుఁ దెలియుచున్నది. అతని మేఘసందేశ కావ్య ముట్టిదే కదా! ఇంత యెందుకు? ఊర్వశి యరణ్యలతగా మఱిన దనుటయే మానవునకును బ్రకృతికిని గల దగఱిసంబంధమును వ్యక్తము చేయుచున్నది. కాళిదాసు ప్రకృతి వర్ణనాభినివేశ మెట్టి దనఁగా ఊర్వశివిరహముచే పరితపించుచుండిన పురూరవుడు కూడ ద్వితీయాంకములోఁ బ్రమదవనమునం దుండి తనమిత్రుఁ డగువిదూషకునితో వసంతమనోజ్ఞత నభివర్ణింపక యుండలేక పోయినాడు.

పురూరవుడు కావించిన మధుశ్రీవర్ణన మిది చూడుడు—

అగ్రే స్త్రీనఖపాటలం కరవకం శ్యామం ద్వయో
రాగయోః
బాలాశోక ముపాధరాగనుభగం భేదోన్ముఖం తిష్ఠతి
ఈషద్ బదరజఃకణాగ్రకపితా చూతే ననా మజ్జితీ
ముగత్సస్య చ యావనస్య చ సఖే మధ్యే మధుశ్రీః
సితా.

ఇందులో పురూరవుడు వసంతలక్ష్మి ముగ్ధప్రాయము నకును, ప్రాథప్రాయమునకును నడిమిదశను జెందియున్న దని సూచనముగా నిరూపించుచున్నాడు. అందే కాళిదాసు ప్రతిభకు దార్పణముయిన మఱొకవర్ణన మిది—

‘నిషించక మాధవీ మేతాం
లతాం కాండిం చ నరయః
స్తేవాదాక్షిణ్యయో ర్యోగాత్
కామీవ ప్రతిభాతి మే.’

ఉద్యానవనములోనికిఁ బోవుచున్న పురూరవ విదూషకులపై దక్షిణవాయువు వీచినది. దక్షిణవాయు వన్న పేరు దానికి సారకమే యని చెప్పుచు పురూరవుడు తనయప్పటి నీతిగో దానినీతిని సమన్వయించుకొను చున్నాడు. ఒకవంక మాధవీలతను నిషేకమంజులగఁగా జేయుచు, మఱొకవంక కుందలతకు గొండి నేర్పుచు ఒకరిపై స్నేహము, మఱొకరిపై దాక్షిణ్యము కల కామునీవలె దక్షిణవాయువు నుండఁ బడుట. ఒకవంక ఊర్వశిని ప్రేమించుచు, మఱొకవంక బ్రోశినదిపై దాక్షిణ్యము నెఱపుచున్న తనయప్పటినితని మనసున మెఱమెఱ లాడుచుం

డఁగా పురూరవుని దక్షిణవాయువుచే గదలి యాడుచున్న మాధవీలతను, కుందలతను జూచినప్పు డది తన వంటి కాముకునివలెనే గోఁచుటయం దాశ్చర్యము లేదు.

చంద్రోదయవర్ణనమును కాళిదా సెంత మనోజ్ఞముగా, ఆశ్చర్యముగాఁ జేసినాడో చూడుడు:

‘ఉదయగుహశశశాంకమరీచిభిః
తమసి దూర మితః ప్రతిపారితే
అలకసంయమనా దివ లోచనే
హరతి మే హరివాహనదిబ్బాభిమ్.’

తూర్పుదిక్కునఁ జంద్రోదయ మగుచున్నది. చీకటి తెరలు విచ్చిపోవు చున్నవి. అందుచే మార్పుదిక్కు మొగము వెలుతురుచే కలకల లాడుచుండఁగా అది మొగముపై వ్రాలుచుండిన ముంగురులను వెనుక కెగఁగ్రోపి కొనినట్లు, దువ్వుకొనినట్లాతనికే గానవచ్చినదట! ఎంత చక్కని పోలిక! ఎంత మనోజ్ఞ మయినభావము!

కరదీపములను చేత పట్టుకొని ఊడగములవారు తన్ను చుట్టి కొలిచి వచ్చుచుండఁగా పురూరవ మహారాజు మణిహర్షప్రసాదమువైపు పోవుచుండినాడు. అప్పు డాతఁ డెటుండె ననఁగా—చణిమలయం దంతట కొండగోగులు పూయఁగా తెక్కులు పోమిచే మఱొక చోటికిఁ దరలిపోవుచుండిన తెలరాజునువలె నుండెను.

విక్రమార్కశీయమును శ్రద్ధగాఁ బరికించినచో నందలి చతురాంకము నిమి తమే కాళిదాసు నాటకము నంతయు రచించినాడాయనిపించును. భారతీయ నాట్యకళా ప్రపంచమున నది యొక యపూర్వమునకభేదము. ఇందు ఊర్వశి విరహకాతురుడైన పురూరవుడు గంధమాద నారణ్యములో ప్రవేశించి యందు తనకన్నులకుఁ గాన వచ్చుదాని నెల తనప్రేమసీమృత్తాంతమును గూర్చి ప్రశ్నించును. అందుచే ప్రకృతివర్ణనమునకు దీనిలో నున్నయవ కాళము మిక్కుటము, సహజము కూడ.

అది వరాకాలము. ఆకాశ మంతట మేఘము లలము కొని యున్నవి. అందు మెఱపుతీగలు మెఱయుచున్నవి. ప్రబులి చెట్లు పుష్పించి గాలికి నూఁగులాడు చున్నవి. నెమళ్లు వేసలి ముగిసిన దని, తమ కలిప్రియ మయిన వరాకాలము సమీపించిన దని సంతోషముతోఁ గేకలు వేయుచున్నవి. పర్వతములు నెలయేళ్లతో నిండి గలగల లాడుచున్నవి. ఈ మనోహరదృశ్యమును వర్ణించుచు పురూరవుడు తనకు వానిచే రాజోపచారములు జరుగుచు డినట్లుగా సంతోషించినాడు. మెఱపు తీగలలోడి మేఘము బంగారు జలతారు కలిగిన మేలుకట్టువలె నుండినది. పుష్పించి గాలికి గదలియాడుచుండిన ప్రబులి చెట్లు చామరములవలె నొప్పారినవి. సంతోషముతోఁ

గేకలు చేయుచుండిన సమకు వందిమాగధు లయినది. సెలయేళ్లతో గలగలలాడుచుండిన పర్వతములు ముత్యాల చారములను గానుక లాసగుచేసేయలవలె నుండిన వంట!

పురూరపుఁ దొక్కొత్త పచ్చికబయలును జూచినాఁడు. దానిపై నవచునచట నిండ్రగోపములు నిలిచి యుండి నవి. దానిని జూచినపుడు పురూరపుని కది తనప్రియు రాలి సనాంకుకమువలెఁ గనబడిన దంట! ఊర్వశి కోప మతోఁ దొందరతొందరగా నడచిపోవుచు కన్నుల నీరు కార్యుచుండఁగా నాకన్నీ రామె యెఱుఁగిపెదవిపైఁ బడి యట నున్న యోగరాగమును హరించి సనాంకుకముపైఁ బడఁగా తొందరచే నామె నేలపై నడలిపోయిన యాస నాంకుకమువలె నుండిన దంట యెఱుఁగి యిండ్రగోపము లతోఁ గూడిన యాపచ్చికబయలు !

ఊర్వశికి పరిభ్రమించుపురూరపునికిఁ దన కగపడిన సర్వమును దన ప్రియురాలుగానే తోఁచినది. ఆటాతఁడు పరిభ్రమించుచుండఁగా నొకచో నాతని కొకమనోహర దృశ్యము గోచరించినది. ఒక తామరపూవులో ఒక తుమ్మెద యుంకారము చేయుచుండినది. దానిని జూచి నంతనే యాతని కొక మధురామధూతి మృగణకు వచ్చి నది. తాను మోచి నొక్కఁగా నీతార్కరముచేయుగ మైన ఊర్వశిముఖమువలె నుండిన దంట యాపద్మము. పద్మమును జూచి పురూరపుఁ డిట్లనుచున్నాఁడు.

‘ఇదం రుగ్ధి మాం పద్మం
అంతఃకూజితవల్పుదం
మయా దప్తాధరం తస్యాః
ససీతార్కర మి వాననమ్.’

ఆచ్చట నొకచోట పచ్చికపట్టుపై నొక నల్లయిఱ్ఱి పరుండి యుండినది. నలుపుగాను, నిడుపుగాను, కడుపు కడ కొంతలావుగాను ఉండిన ఆ నల్లయిఱ్ఱి పురూర పుని కంటికి—కాదు—కాళిదాసు ప్రజ్ఞాచక్షువునకు కానన శ్రీ తాను జూచునపుడు చూచిన కటాక్షమువలె నుండిన దంట !

ఇట్టి ప్రకృతివర్ణనముల కెల్లను శిఖరభూత మయినది, అత్యంతమనోహర మైనది మఱొకటి కలదు. పురూరపుఁ దొక్క పెలయేటిచెంతకుఁ బోయినాఁడు. దానిని జూచి నంతనే యతనికిఁ గొన్ని పోలికలు కానవచ్చి ప్రణయకుపిత యైన తన ఊర్వశియే యట్లు నడిసర్పరూపమును దాల్చి విసవిస నడచి పోవుచున్న జేమా యని యాతఁడు సంత యము ప్రకటించివాఁడు. ఆ యాశ్లోకము—

‘తరంగధ్రూభంగా యుభిరవిహగ శ్రేణిరసనా
వికర నీ ఘనం భసన మివ సురంభశిఖిలవై
యఘోవిదం యాంతి సులిత మభిసంధాయ బహుశో
నదీభావేనేయం ధ్రువ మసహనా సా పరిణతా.

ఆ పెలయేటిలోని యలలు కనుబొమమడులును, బాగులు తీరి శల్పించుచుండిన రాయంచల మొత్తము మొల నూలును కాఁగా అలల తాకిడిచే నిటు నటు కూడుచు విచ్చిపోవుచుండిన నురుగు తండ మనెడి జాటుపెట నీడ్చికొనుచుఁ దొందరచే నడుగడుగునఁ దొలుపుపడుచు విసవిస నడచిపోవుచుండిన ఊర్వశివలె నాతని కాపెల యేటు కానవచ్చినది.

ఇట్టి మనోహరము లయిన ప్రకృతి వర్ణనములతో సహృదయుల హృదయములను రంజింపఁజేయుట మాత్ర మతో సంతృప్తి చెందక విక్రమార్కశియము సామాన్య ప్రేక్షకులకుఁ గూడఁ జక్కనిదృశ్యములతో వినోదము కొలుపుచున్నది. రథారూఢుఁడైన పురూరపుని పయనము, అప్పురసల హేమకూట తెల శిఖరాధిరోహణము, మణి హర్యప్రాసాదముపై ఊర్వశిపురూరపుల సమాగమము, విరహార్దుఁ డయినపురూరపుఁడు గఁధమాదనారణ్యమున ఊర్వశికి యన్వేషించుచుఁ గావించిన పరిభ్రమణము, చిత్రఘంటును, నారదుఁడును తటాటన ఆకాశమార్గ మున ఆచరతించుట మొదలగునవి రంగసలముపై ప్రదర్శి తము లయినప్పు డెట్టి మనోహరదృశ్యములుగా కాన వచ్చునో యూహింప వలసినదే కాని వర్ణింప నలవి కాదు.

దీని కంతకును శిఖరభూతము మఱొక దృశ్యము కలదు. చతురాంకము కడపట ఊర్వశి పురూరపు లిరువురును నొక్కో మబ్బువిమానముపై నెక్కి ప్రతిష్ఠాన మునకు విచ్చేయుదురు. తళితళి మని ప్రకాశించు మెఱపు తీగ ధ్వజమువలె శోభిల్లఁగా, ఇంద్రధనుస్సు అందరి చిత్రమువలె నొప్పారఁగా, లోలకర మేఘముపై నాప్రేమి కులజుల యాకాశయానమున ప్రతిష్ఠానమునకుఁ దరలి వచ్చుదృశ్యమును జూచి యేసామాజికుఁడు ముగ్ధుఁడు కాఁడు. ఇక చతురాంకము సరే సరి. అది యంతయు విశేషనాట్యాభినయప్రక్రియారూపమైయున్నది.

ఇట్టి మనోజ్ఞ దృశ్యవై భవముతోడను, ప్రకృతికర్త స పరిశీలనముతోడను, మానవస్వభావపరిజ్ఞానముతోడను, ఇన్నిటిని మించి శ్రుతిసుభగ మైన గేయరచనా పాట వముతోడను గూడిన విక్రమార్కశియములోని ఊర్వశి సౌందర్యము రవింద్రకవిని, అరవిందయోగిని ముగులను జేసె నన్నచో మన మాశ్చర్య పడవలసిన యవస్థయు లేదు!

చేమకూర శబ్దవైచిత్ర్య

by

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“క. ప్రతిపద్యమునందుఁ జను
త్కృతి గలుగఁ జెప్ప నేర్తు వెల్లడ జెగు కా
కృతి వింటి ముపారముగా
క్షీతిలో నీమార్గ మెవరికై రాదు సుమీ!”

అని కవితాప్రళ నీ పొందిన కవితలజ్ఞుడు చేమకూర వెంకటరాజు. మఱొక సందర్భమునఁ జెప్పబడిన దయినను శ్రేష్ఠతే ‘వాఙ్మయమరూఢి నీయంతవాఁ డిఁ కడి?’ యనుట కూడ నట్టిప్రళ నీనే ధ్వనించుచున్నది. ఈ ప్రళ నీని గఠితో క్రిగఁ జేర్చిననవాఁడు మఱియొక మఱియొక కాదు. ‘తా రసపుష్టమైఁ బ్రతిపదంబున జాలియు వారయక జమత్కారము నరగౌరవము గల ననేకకృతుల ప్రసన్నగంభీరగతిక రేచించి మహిమించిన’ రఘునాథ భూపరసికాగ్రణి. ‘గీతిపాహితీ మోహనవాణులు చెవులు వట్టి యాడించిన’ దక్షిణనాయకుడు. ‘ఏకతి రచియించిరేని సమకాలమువారలు మెచ్చరే కదా!’ యని తననిర్వచమును బ్రకటించి యుండినను చేమకూర వెంకటరాజు సమకాలమువాఁ డగుతంజావూరు రఘునాథ నాయకునిచేతనే ప్రశంసలు పడయుట కాలని ప్రతిపద్యచమత్కారమే ప్రధానకారణము. వేంకట కవియే పేర్కొనిన యాత్రితపక్షపాతముచే నాఁయభినవ భోజిరుదాంతుఁ డట్లు ప్రశంసించి యుండు ననుటకును వీలు లేదు. కవిత్యమున మంచితీని సంపాదించినవారిని గూర్చి పేర్కొనునపుడు ‘చేమకూరపాకము’లోఁ బడిన దనుట పరిపాటి యయినది. ‘ఇంటిపేరు నస యైనను గవిత్యము పసగా నున్న’ దని యొక ప్రాచీనవాఙ్మయ విమర్శకుఁ డాతనియింటిపేరును జనుత్కరించినాఁడు. ‘ఈ చేమకూర చక్కరమడిలో నమృతము పొరించి పెంచినది కాదు’ అని వేదము వేంకటరాయ కాష్ఠిగారు తమ యానందమును బ్రకటించినారు. ఇట్టిందఱి ప్రశంస లకుఁ బాత్ర మై పరవశత్వము గలిగించిన యీ కవితలజ్ఞుని కవితలోని గుణవిశేషము ‘చమత్కారము.’ రఘునాథ నాయకుఁడు కూడ నీ ‘చమత్కృతి’ నే పేర్కొనెను. రఘునాథ నాయకుని కవితాగుణములుగా వెంకటకవి పేర్కొనిన ‘జాతిపారాచమత్కారముల’లో నీ చమత్కారమే కలదు. చమత్కార మనఁగాఁ జిత్రవిపార రూప మయినయాహ్లాదజనకత్వమునకు పోతుండు మగు

నది. ఇట్టి చమత్కారము - చిత్రవి సరణహేతువు - శబ్దవైచిత్ర్యములమున సాధింపఁబడినది. దక్షిణదేశీ యాంధ్రవాఙ్మయములో నీతని కృతులు విజయవిలాసము, పారంగధరచరిత్ర యనునవి ప్రసిద్ధి పడయుటకు ముఖ్యముగా నందలి ‘శబ్దవైచిత్ర్య’ యే కారణము. వసుచరిత్రము నుండి యొకపద్యమును గూడ నుదాహరింపని యప్పుకవి యీతని కృతులలోని ‘శబ్దవైచిత్ర్య’కి ముగ్ధుఁ డై యుండుడి యయిదు పద్యముల నుదాహరించినాఁడు. ఆప్రయత్నముగాఁ దమయంత తామే విజుగునటు లోఁచుయమకముల కూర్చునలనను, శ్రేష్ఠరచనా సామర్థ్యమువలనను, వక్రొక్తి మూలమునను, సామెతలను, జాతీయములను సారకముగా నందముగాఁ గూర్చుటవలనను నీతని కవితలో శబ్దవైచిత్ర్య సాధింపఁబడినది.

వెంకటకవి కవితలో నీగుణము ప్రధానముగా నెక్కినటుటకుఁ గలకారణము లేవో, చారిత్రకముగా నట్టిపరిణామము గలుగుటకు హేతువు లెట్టివో యించుక పరిశీలింతుము. భావము, వస్తువు, రచన యను మూఁడు కవిత్యధర్మములలో నొక్కొక్కటి యొక్కొక్కకాలమునఁ బ్రాధాన్యము వహించినది. తిక్కనకవితలో భావమును, నన్నెచోడుని కవితలో వస్తువును ప్రాధాన్యము వహింపఁగా నాచన సోమనాథుఁడు తొలిసారిగా రచనాధర్మమునకుఁ జొరబడినట్టి నవీనగుణనాథుఁ డయినాఁడు. ‘శబ్దాలంకారములు, సామెతలు, జాతీయములు నాతని కవితలోఁ జోటు చేపికింపబడి. భావసౌకుమార్యమును, నరసాందర్యమును లేక పోయినను కాల్పికసాందర్యమును సాధించుటకే యాతఁడు ప్రయత్నించినాఁడు. అనుపాసములును, నంత్యప్రాసములును నాతని కందుకొనినట్లు చేతికెఱ జిక్కును. యమకములున్నవి యున్నట్లుగా నుండి చోటు చేసికొనును. ఏక నాదము కలపదములు జంటలు జంటలుగా నెక్కడనుండియో వచ్చి వ్రాలును. అవకాశము దొరకి నప్పు డెల నొకసామెత సహజముగా వచ్చి యతుకుకొని పోవును.’ ఇట్లు నాచనసోమఁడు రచనాప్రధాన మయిన కవిత్యరచనమునకు మార్గదర్శకుఁడు కాఁగా నాతఁడు తీర్చినమార్గమువెంట మఱియొక ముందునకు సాగినారు తరువాతికవులు. ప్రబంధకవులలో నీరచనాధర్మము రామణీయకమునకుఁ దోడ్పడు రసమును బోషించినది.

ఇంచుమించుగా నాకాలముననే తెలిసిన రాఘవపాఠిడ బియ్యము, పాఠశ్రంధ్రణలోపాఖ్యానము ననుద్యోగి కావ్యములు సభంగాభంగశ్రేణులు సాధించి యోహానో! యనిపించినవి. పదముల బిణుపువలన నరభేదము తప్పని సరిగా నాకావ్యములయందు సాధింపవలసివచ్చినది. తమ చరిత్రములోని శ్రేణులు, చినుత్కారములు, శబ్దాలంకారములు, సంగీతభంగ్యము సమృద్ధయల సృష్టయములను రంతింపఁ జేసినవి. ఒకవంక నాచన సోమనాథుని మూలమునను, మఱొకవంక భట్టుమూరివలనను, వేదాంత వంక రాఘవపాండుబియ్యది ద్యోగి కావ్యముల మూలము నను బ్రభావితంఁడయిన వెంకటకవి ప్రతిపద్యచమత్కృతి సాధించుటకై ప్రయత్నించుట యనవశము కాదు. ద్యోగి కావ్యములపై నాకాలమువారి కాదరము కల దనుటకుఁ గృష్ణాద్వైతి రచించిన 'నైషధపారిజాతీయ' మనెడి ద్యోగి ప్రబంధమే ప్రబలనిదర్శనము.

యమక మనెడిశబ్దాలంకారమునకు సాహిత్యదర్పణ మునం దీశ్లోక ముదాహరణముగా నొసంగఁబడినది.

‘నవపలాశపలాశవనం పురః

స్ఫుటపరాగపరాగతపద్మజమ్

మృదులతానలతాన్త మలోకయత్

సమరభిం సురభిం సుమనోభరైః’

ఇందు పలాశ పలాశ, పరాగ పరాగ, లతానలతాన్త, సురభి సురభి యనుపదముల కద్రేక్రమమున నావృత్తి యుండియు నరము వేఱగుటచే నిండు యమక మలంకారము. ఇట్టి యమకములహార్ష వెంకటకవి రచనలలో విశేషముగాఁ గానవచ్చును. ఈ విషయమున వసుచరిత్ర కావ్యః డీతనికి వరపడి యున్న ట్లుహించుట యనమంజ గము కాదు. రామరాజభూషణుని యమకప్రయోగచాతురికి పద్యము వివేచకు :

‘అని మన సూర నూఱిడిల నాడి యయో మన మంజు చాణియుం, జనితడ వయ్యె నేమిటికి జా గొనరించె నొకో నగేంద్రనం, దన మదికొందలం తెలుగదా తగదా పగదాయ వెన్నెలక, మునిఁగెనుబాల నెత్తి నయముం బ్రియముం దయ మున్నగాఁ గనన్.’

ఇంతకంటె సరసముగాఁ జమత్కారముగా - సహజ ముగాఁ గూడ నున్న చేమకూరకవి యమకములను జూడుడు :

క. అరచందమామ నేలిన

దొరగా నెన్నుదురు నెన్నుదురు బిత్తరికిం

బరువంపుమొల్ల మొగ్గల

దొరగాఁ బల్కుదురు బల్కుదురు జవ్వనికికె.

ఇంచు నెన్నుదురు, పల్కుదురు, దొరగా యనుపదముల యావృత్తిచే యమకము.

క. మనుకలు గంగానదిలో

నొనరించుటకన్న భాగ్య మున్నదె? యనుచుకా

మును కలుగంగా దిగి పరి

జనములు కైలా గొసంగ స్నానోన్ముఖుఁడై.

ఇందు మనుకలు గంగా యనుపదముల యొక్క యావృత్తిచే యమకము.

క.

యమునానదిఁ గూడిన లో

యము నా నది తనరెఁ దల్కచామేవక మై.

యమునానది యనుపదమున కర భేదమునో నద్రేక్రమ మున సభంగాభంగముగా నావృత్తి. ఈ పద్యము నందలి యమక మెంత చిత్రముగా నున్నదో చూడుడు :

దానము లెన్నియే నవటి

తైరికభూసురగుంఘ మెల్ల డెం

దాన ముదమ్ము చెందఁగ

నొనర్చి దృశ్యవ్రతచర్య నిర్ణయం

దానము చేయుచుకా హరికథా

శ్రవణం బొనరించుచుండె నం

దా నముచిద్విష తనయుఁ

దాశ్రితకల్పమహీరుహం బనన్.

ఇందుఁ బ్రతిపాదమునందును మొదల ‘దానము’ అను పదమున కావృత్తి. దానిచే యమకము. మఱికొన్ని యమకము లివి చూడుడు :

గీ. మంచిముగఁడు వలయు నంచుఁ గోరుచు నుండె

మంచిముగఁడు గలె మఘవసుతుఁడు

మనసుభద్ర సుకృతమహిమ యే మనవచ్చు

మనసు భద్ర మయ్యె మనకు నెల్ల.

క. కలశ సని మణికంకణ

కలశ సనినాద మెలయఁగా నొకతె వడిం

దలఁ బ్రామి పసిఁడికొప్పెర

జలములు చెలు లంది యొసఁగ జలకం బార్చెన్.

గీ. ఏను దీర్ఘము లాడఁగ నేగుదెంచి

యేనుదీర్ఘము లాడ నో డివలఁ జనుట

బొరుషమె ? యంచుఁ గ్రుంకఁ బో వారిచరము

పట్టెఁ ; బట్టిన నమృతాశాహుబలుఁడు,

క. ఎడమకరంబుననే య

య్యెడ నుకరముఁ బట్టి తెటి కీడిచి వైవక

.....

క.

వరుసర ! వసింపఁగ నీ

కులు వీర దృఢాంకసారిఁ గోరినదానన్.

క.

శృంగారవలికిఁ గల్గెన్

మంగళసూత్రంబు చతురిము గళసీమన్.

శేషచమత్కారముమూలమున శబ్దవెచ్చితి యెట్లు
సాధింపఁబడినదో యీ పద్యమునందుఁ జెలియును.

గీ. పోఁకమాఁకుల మహిమ కప్పరపుటనఁటి

యాకుఁదోఁటల సాభాగ్య మంచె కలదు

ప్రబలు మా కికసాధనంపదల మహిమ

వీటిరహి మెచ్చవలయుఁ బో వేయునోళ్.

ఇందు వీటిరహి, వేయునోళ్ అనుచో నరశేషవలన
పోఁక, కప్పరము, అకు, సాధము అను పదముల బల
ముతోఁ గర్పూరసహిత మైన తాంబూలవిషయము -
అప్రస్తుతము ఘురించుచు నప్రస్తుతప్రశంసాలంతార
మగుచున్నది.

ఒకఁడు ఒకయరములోఁ బ్రయోగించువాక్యమును
మఱియొకఁడు శేషచేతఁ గాని, కాకుపుచేతఁ గాని వేలు
ప్రకారమున యోజించునెడల నది యిరుదలఁగుల
వక్రోక్తి యగు నది సాహిత్యదర్పణకారుని లక్షణము.
ఇట్టివక్రోక్తి లక్ష్యమీపద్యము వెంకటకవి సారంగ
ధర చరిత్రములోవిది.

ఉ. అల్ల నాధిరాజకుటుంబ డర్మిలి మేనక ముద్దోనర్ప రా
గిల్లి కుచులు లాన గమకించుట గంటిచె రాకుమార ! యా
నల్ల నాధిరాజకుటుంబ డర్మిలి మేనక ముద్దోనర్ప రా
గిల్లి కుచులు లాన గమకించుట బాల్యము గాచె మానినీ !

ఇందుఁ జిత్రాంగి వాక్యమునే నేర్పుగా విజీచి
సారంగధరుడు ప్రత్యుత్తరించుటచే నిండు వక్రోక్తి
మూలమున శబ్దవెచ్చితి సాధింపఁబడినది. ఇట్టి చమత్కా
రములోడి పద్యరచనము నీతఁడు నన్నిచోడునిఁ జూచి
నేర్పి యుండు నని యూహింపఁ దగును. నన్నిచోడని
పద్యములలోని యిట్టి చమత్కారమునే యీ పద్య
ములలోఁ జూడుఁడు:

క. తా నేల వచ్చు భూసతి

మానవపతిచరిత నీలిమార్గం బైనన్

దా నేల వచ్చు భూసతి

మానవపతిచరి తనీలిమార్గం బైనన్.

క. ఈ ననియ తలంచుఁ జాగియు

నీ ననియ తలంచు లోభి యెప్పుడు ననికిన్

జా ననియ తలంచు వీరుఁడు

చా ననియ తలంచుఁ బంద సరి యెట్లగునో ?

జాతీయములను, సా వెతలను వెంకటకవి సారకముగా
న దముగాఁ గూర్చివాఁడు.

ఉ. చిత్తజఁ డల్లి తూపు మొనఁ జేవినఁ జేయఁగ నిమ్ము

పై ధ్వజం

బె తిన నె త నిమ్ము వచ్చియుంచెదఁ గలిసమాట గట్టిగా
న తేరభాయ తేక్షణ కటాక్షవిలాసరస్సప్రహహముల్

కుతుకబంటి తామరలకుం దలమున్నులు గండుమీలకున్.

ఇందు ధ్వజ మెత్తుట, కుతుకబంటి, తలమున్నులు

అను జాతీయములు సారకములుగాఁ బ్రయోగింపఁబడినవి.

ఇట్టిచే మఱొకపద్య మీది చూడుఁడు:

చ. జలరుహగంధవినులపఁగల్

నవసంఖ్య నడేమి లెక్కనున్

జేలువ నఖాంకురాలి నెలచేడియ

పైకముఁ దాను జాక్కనున్

బాలఁకుక గల్పించన్నఁగన

పువ్వులచెండ్లను లేదు బం తమక

గలికి ముఖారవింద మల

కల్పలరాయనిఁ ద్రోసిరా జనున్.

వేటొకపద్య మీది చూడుఁడు:

గీ. చెలువ ! నిను రాజకీరంబు చెట్టవలె

గలికి ! నిను రాజహంసంబు కాలుద్రొక్క

మంచితకునంబు లిదిగా ! నామాటఁ జూడు

కన్నె ! యీలోనఁ బెండి గాఁ గలదు నీకు.

ఈ పద్యములో చెట్టవట్టు, కాలుద్రొక్క ననుజాతీయ
ములు శేషచమత్కారముతో సారకముగాఁ గూర్చఁ
బడినవి. సామెతల సారకతను నిరూపించుటతో యవ
సందర్భమున కతుకునట్లుగాఁ జమత్కారముగా వాని
నుపయోగించి సారస్వము కూర్చినాఁడు.

గీ. 'మాతృమనకుఁ బోవ మొన లెతుకొని పోయె'

ననెడువార్త నిక్క మగు నటంచు

గ్రుంక వెఱుకు రెవ్వరును; 'మీర లటు పోకు'

డనిన నవ్వుకొనుచు నరుమండు.

సాభద్రధర్మమున దర్జునుడు స్నాన మాడఁ బోగా
నచట మానులు పలికినట్లుగా నొక లోకోక్తిని సందర్భ
మునకు సరిగా నెట్లలికినాఁడో గమనింపుఁడు: ఇట్టిచే
మఱొకటి.

క. ఆలయవిలుకాఁడ వమృతము

చిలికడునెల యేల ? సామిచే గాదె వియో

గుల నేఁచఁగ ? విండ్లమ్ములు

గలవారికి దోడు చల్లకడవలవారే ?

స్త్రీవర్ణనము చేయుచు మాటలకుఁ గలయర్థభేదమును

బురస్కరించుకొని యట్టిమాటలతో నొక సారస్వము

కల్పించు నుద్దేశముతోఁ గావించిన యీ చమత్కార

కల్పనము పెంకటకవి శబ్దప్రయోగవైచిత్ర్యమటయ
మానము!

ఉ. కన్నులు దీర్ఘముల్ నగుమొగం
బవురా తలకట్టు తమ్మిపూ
పున్నమచందమామలకుఁ బొక్కిలి
చక్కఁదనంబుఁ కెప్పఁగా
నున్నది? మేలుబంతులు
పయోధరముల్; మఱి కామ సున్న తా
నెన్నిక కమ్మవ్రాతఫల
మివ్వరవల్లినికి న్నిజంబుగన్.

ఇందు తలకట్టు, దీర్ఘము, పొక్కిలి, మేలుబంటి,
సున్న యనుగుణితములొని పరిభాషల కర్థభేద కల్ప
నముతో నిచట శబ్దచమత్కారము సాధింపఁబడినది.
అట్లే మఱొకపద్యములోని యర్థచమత్కారమును జిత్త
గింపుడు:

ఉ. ఊడుక పోవు శంఖము
నహా! గళశేఖ; శరాసనంబులకా
వాదుకుఁ బట్టు కన్నీముల
వెళ్ళిరి వంకలు దీరుచుం; గటా
క్షోదయల్ల సాయకసమాహముల
న్విషమాస్త్రు గెల్పుఁ బో
యేదొర సాటి యీనరున
కన్నఁగ పీరవిలాససంపదన్.

ఈ పద్యములోని ఊడుక పోవుట, వాదుకుఁ బట్టుట,
వంకలు దీర్చుట యను తిరస్కారవాచకపదములకును,
నాయా యుపమానవాచకముల స్వభావములకును జక్కని
యర్థభావసమన్వయము శేషమాలమున సమకూడినది.

గీ. క్రాగి యున్నది మిగుల వంగంబు నూడఁ
గలవరించుచు నున్నది; కలదొ యేమొ
సోఁకు; డల్ల సన్నానికే చూపవలయు
భావ! నని పల్కె నానత్యభావ నగుచు.

ఇందు 'సోఁకుడు' అన్న శబ్దప్రయోగముచే సారస్యము
సమకూడినది దానికిఁ బ్రత్యామ్నాయముగా మఱి
యే పదము నాడినను నాయర్థసారస్య మిందు సమీకూడి
యుండదు.

ఇట్లు యమకము, శ్లేషము, వక్రశ్లోకులు, జాతీయములను,
లోకోక్తులను సరసముగాఁ బ్రయోగించుట, చిత్రపద
కల్పనలు మొదలగువాని మూలమున చేమకూర పెంకట
కవి శబ్దప్రయోగవైచిత్ర్య సుపాదించి, కవిలోకమునఁ
జిరయశస్సు గడించుకొనినాఁడు. 'శ్రీతిలో నీమార్గ
మెవరికికా రాదు సుమీ' యనుమాట నేటికిని బాల్సి
పోక యుండుటయే యాతని కవిత్వాపటిమకుఁ బరమ
నిదర్శనము. కాని యా 'శబ్దచిత్రములు' మనసును గిరిగింత
పెట్టి కవిప్రతిభ కచ్చెరువు కూర్చు నేరూ కాని
మనస్సు పరవశ మగునట్లు చేయఁజాల వనుట తథ్యము.
అంగభాషాసంపర్కమువలనఁ దిరిగి యొకమాటు తెలుఁగు
కవులదృష్టి భావప్రధానము లగురచనములమీఁదికిఁ
బోవుటచేత గాఁబోలు చేమకూరమార్గమును దరువాతి
వారసుసరింపక పోయిరి. ఆ టనుసరింపక పోవుటయే
యాధునికాంధ్ర సాహిత్యమున కుపకారక మయినది.
లేకున్న సారచనాభ్యాసాహము మన కవిత నెక్కడకు
లాగికొని పోయి యుండునో!

[ఆకాశవాణి సౌజన్యముతో]

ఉ పా య న ము

by

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మాటికిమాటికి మధురమంజులభావము లూరఁగా మనో
వాటిక కేత మెత్తి చిటువాఁగులఁ బాటఁగఁ జేయుచుంటి నీ
బోటికి నీకును విటుగఁబూచిన మానసిక స్రసూనముల్
నీటుగ గ్రుచ్చి మీ మెడల నెక్కినఁజేయుతలంపుతో ప్రభూ!

ఎన్నాల్ల మెడచుట్టు దాల్చెదవు నీ వీ నాగము న్నిశ్వరా!
కొన్నాల్లె నను దాల్చరాదొ హృదయక్షోణీసర్వీ బూచె నీ
విన్నాణంపుసుమంబు లిం పదవఁగా విశ్వేశ! నాలోన నా
కన్నుల్ చల్లఁగఁ జూడఁ గల్గుదు ప్రభూ! కంఠమ్మునం దాల్చవే!

సరముల్ గ్రుచ్చఁగఁ జాలినన్ని సుమముల్ స్వాంతమ్మున బూచి, నీ
చరణమ్ముల్ మది నిల్పి పూజ యిడఁగా సౌరభ్యముల్ కక్కుచున్
శరవేగమ్మున దూఁకుచున్నయవి స్వేచ్ఛావాయుసంచారమున్
దరలన్ జేయుచు నీదుపదములచెంతన్ రాలి భాసిల్లఁగాన్.

వాడనిసూనముల్ మెడను బాయఁగఁజాలవు సర్వకాలమున్
వాడినఁ దగ్గ దయ్య సుమభారము, పావన మైనభావముల్
తోడుగఁ బెర్చి నట్టి నవతోయజముల్ వికసించె నో ప్రభూ!
వేడుకతోడఁ గంఠమున వేసెదఁ గైకొను మయ్య మాల్యమున్!

నీ మహిమంబుచేఁ గలిగె నీరజముల్ ప్రభవించునాదు హృ
త్సమ యిదే మహాత్మ! సరసీరుహజాతపు నిండుపంటతో
దామములన్ రచించి తొలుత నిడఁ గోరుదు నీకు నై ప్రభూ!
కామితమున్ ఫలించె నని గర్వినిగా మది విష్ణు వీఁగఁగన్.

హృదయక్షేత్రము నీకు నంకితముగా నిత్తున్ మహాదేవ! నీ
సదయాత్మన్ గొని దాని నెప్పుడును బ్రతౌళించు సర్వేశ! స
మ్మద మేపారఁగ గాంగనిర్మలముతోఁ బూజింతు నిన్ సర్వదా
కొద వావంతయు లేక పూసెడిని నీక్షోణీ సుమవ్రాతముల్!

దు ర్గో ధ ను ని శీ ల ము

by

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ఉపోద్ఘాతము :

నన్నయ తన భారతభాగమునఁ దీర్చి దిద్దిన పాత్రలలో దుర్యోధనుని పాత్ర సజీవ మైనది. మన ప్రస్తుత పత్ర నీయభాగ మగు 'ధర్మజుని రాజనూయయాగ' పూర్వార్థము నందు శిశుపాలవధయు, నుత్తరాధ్యక్షున దుర్యోధనుని దురాలోచనమును వర్ణితము లై యున్నవి. ఈ యుత్తర భాగ మగు దుర్యోధనుని దురాలోచనమున దుర్యోధనుడు తక్కిన భారతకథయందువలెఁ బ్రధానభూమికను వహించి యున్నాఁడు. ఇం దితఁడు రాజాధిరాజుగను, అనూయాపరుఁడుగను, ఆలోచనాశూన్యుఁడుగను, కార్య సాధకుఁడుగను మనకు గోచరించుచున్నాఁడు.

వై భవము :

దుర్యోధనుడు ధర్మరాష్ట్రుని పెద్ద కొడుకు. మా పినా పురమున కధిపతి. సోదరులు, మిత్రులు, ననుచరులు నితనికిఁ బ్రయులు. అప్రియు లెవ్వరును లేరు. భూపతు లెందఱును భక్తియుతు లై సదా యితనికిఁ గొలుతురు. దుర్యోధనునికి మహాభీష్ములు దేవేంద్రునికి గలిసె యటుల గలవు. దుర్యోధనుఁ డిట్టి వైభవోపేతుం డగుటంజేసి ధర్మజుని రాజ నూయయాగమున తక్కిన రాజుల కన్నను మిన్నగ గౌరవింపఁబడినట్లు తెలియుచున్నది. ఈతని పెద్దతన మును గుర్రజింగియే ధర్మజుడు రత్నపరిగ్రహమునం దితని నియమించెను. దీనింబట్టి దుర్యోధనుని వైభవము తెలియుచున్నది.

అనూయాపరుఁడు :

దుర్యోధనుడు మిక్కిలి అనూయాపరుఁడు. రాజ నూయయాగమును నాధారముగాఁ జేసికొని పరిశీలించిన నితనియం దనూయ ప్రబలుటకు రెండు కారణములు తెలియుచున్నవి. (1) యాగానంతరము మయసభావిభవ మును జూడఁదలంచి దుర్యోధనుఁ డొకనాఁడందు గ్రుమ్మ రుచు తెఱచియున్న ద్వారప్రదేశములను మాసియున్నవని తలచి చొజ నొలక, మాసియున్న వానిని తెఱచియున్న వని భ్రమపిచొచ్చి నుడుటిదెచ్చి నొంచెను. పుటికదీప్తు లతోఁ గూడిన జలాశయమును సల మని తలపోసి యందుఁ జొచ్చి కట్టనట్లుటను తడియఁగా వెనుకకు మరలెను. ఇట్టి

సిలియం దున్న దుర్యోధనుని గాంచి ద్రౌపదియు, పాండు కుమారులు నగిరి. (2) రాజనూయయాగాంతమున ధర్మ రాజు నాగదుఁడు, వ్యాసుఁడు మొదలగు మహర్షులచేఁ గొలువఁబడినవాఁ డై యింద్రునివలె నొప్పారెను. ఆతఱి ధామ్యుఁడు తీర్థజలంబుల నభిషేక మొనరించెను. ఇట్లభి షిక్తుం డైనధర్మరాజునకు సాత్యకి మాక్తికచ్చత్రము పట్టెను. భీమాదుములు వింజాయరులు వీచిరి. శ్రీకృష్ణుఁడు, కవలలు రాజుల నెలరను వేర్వేలుగా నతనికిఁ మ్రొక్కించు చుండిరి. అట్టి ధర్మరాజువైభవమును గాంచి దుర్యోధ నుఁడును, నతని యనుచరులును చెన్ను దఱిగి యుండిరి. అట్టి దుర్యోధనాదులం జూచి శ్రీకృష్ణుఁడు, సాత్యకి, పాండవులు, ద్రౌపది నగిరి. ఈపై రెండు కారణములు దుర్యోధనుని కనూయాజనకము లైనవి.

పరుల సంపదఁ జూచి యోర్వలెనివాఁడు :

దుర్యోధనుడు పరుల సంపదను జూచి సహింపఁజాలని వాఁడు. దుర్యోధనుని యనూయయే యితని యోర్వలెని తనమునకు దారి తీసినది. ధర్మజుని మయసభా నిర్మాణ మును, రాజనూయయాగ వైభవమును నాతనికి సహింప రాని వయ్యెను. దుర్యోధనుడు శకునితోఁ దన విచార మునకుఁ గారణమును చెల్పుచు 'అత్యుపరాక్రమారితము లైన ధనంబుల కేర్పిఁజేసి యున్నత నుగుచున్న పాండు నరనాథతనూజుల లక్ష్మీ నా కసమృతమయి నూ వెలింగ' నని పలికెను. ఇంకను సకలజనులకు నయనానందము గలిగించిన సభాలక్ష్మీ దుర్యోధనుని కనుల కగ్నిజ్వాల వలె మహాదాహమును గలుగఁ జేసెను. దీనివలన నితఁ డొరుల సంపదలఁ జూచి సహింపనివాఁడుగాఁ దెలియు చున్నాఁడు.

మానధనుఁడు :

దుర్యోధనుడు మానమునే ధనముగాఁ గలిగినవాఁడు. కావున నితఁడు మయసభయందును, రాజనూయయాగము నందును గలిగిన యపమానమును దలపోయుచు, మా పినా పురమున గుఱోపభోగములకు విముఖుం డయ్యెను. ఇట్టి సిలిలో నున్న కురురాజుకడకు శకుని యేలెంచి విచార మునకుఁ గారణ ముడుగ నాతఁడు తన హృదయములోని

వేదనను చెలడించెను. అతఁడు శకునితో 'మాన
ధనాధ్యుఁడైన భూపతి సహియింప నోపునె సపత్నుల
వృద్ధియు నాత్యహానియుకా' అని పలికి తన మానధనత్వ
మును నిరూపించుకొనినాఁడు. తన తండ్రి యగు ధృత
రాష్ట్రునితో శరీరవైవర్ణ్యమునకుఁ గారణమును చెలుపుచు
'ఏను నొక రాజసుతుఁడ నై యెట్లు దీరి జూడ నోపుదుఁ
బ్రాధవశూన్యనట్లు'ని ఆ పలికెను. దీనింబట్టి దుర్యో
ధనుని 'మానధనత్వము' తెలియుచున్నది.

అలోచనాశూన్యుఁడు :

దుర్యోధనుఁడు మానధనాధ్యుఁడైనను అలోచనా
శూన్యుఁడుగా గమపట్టుచున్నాఁడు. ఈ యాలోచనా
దక్షత లేమింజేసి ఇతనియందుఁ గార్యశూరతయు నంతగా
గానరాదు. అలోచనల కిరఁ డితరులపై సాధారపడు
చుండెడివాఁడు. దుర్యోధనుఁడు పాండవుల వైభవమున
కనూయఁ జెంది సకలభోగములకు విముఖుఁడై యుండెనే
కాని, యితనికి వారల లక్ష్మి నపహరించుట కను వగు
నుపాయము దోచినది కాదు. కావుననే తన మామ యగు
శకునితో 'పాండవుల లక్ష్మి యెవ్వధంబున మన కపహ
రించికొన నగు' నని యుపాయమును గోరెను. ఇందువలన
దుర్యోధనుని యాలోచనాశూన్యత్వము తెలియనగును.

కార్యసాధకుఁడు :

దుర్యోధనుఁడు తాను పట్టినపంతము నెట్లు లెనను
కొనసాగించుకొన దలఁచినవాఁడు. శకుని ధృతరాష్ట్రుని

సమక్షమున దుర్యోధనునితో పాండవుల సంపదను
మాయాజూదమున నపహరించి యిత్తు నని పలుకఁగా
దుర్యోధనుఁడు సంతసిలి శకుని మతమున కొడఁబడు మని
తండ్రిని గోరెను. అందులకు ధృతరాష్ట్రుఁడు విదురుఁడు
నయవికారదుఁ డనియు, నాతఁడు చెప్పినచోష్ట్రునఁ బ్రవ
ర్తింక మనియు పలుకఁగా దుర్యోధనుఁ డనిష్టతను
జెలిపి శకుని మోసమున కొడఁబడవేని యాత్మగంభ
స్వభక్షుచే భక్షితుండ నగుదు నని తన కార్యవిశ్వయ
మును జెలియఁజేసెను.

తండ్రి కిష్టుఁడైన పుత్రుఁడు :

దుర్యోధనుఁడు ధృతరాష్ట్రుని సూర్యుపుత్రులతో
తండ్రికి ప్రీతుపుత్రుఁడుగా తెలియుచున్నాఁడు. శకుని
దుర్యోధనుని ధృతరాష్ట్రునికడఁగ గొంపోయి శరీర
కార్యవైవర్ణ్యములను చెప్పిన విని యదరిపడి కుమారుని
శరీరమంటి చూచి మిక్కిలి దుఃఖితుం డాయెను. మఱియు
సర్వభక్షుచే భక్షితుండ నగుదు నని దుర్యోధనుఁడు
పలుకఁగా ధృతరాష్ట్రుఁ డియ్యకొనక కుమారుని కోరిక
తీర్చుటకై మయసభను బోలుసభను నిర్మింప శిల్ప
చారువుల నియమించెను.

ఇట్లు దుర్యోధనుఁడు ధర్మజుని రాజనూయయాగ
మున ననూయాపరుఁడుగను, వైభవోపేతుఁడుగను,
నాలోచనాశూన్యుఁడుగను, మానధనుఁడుగను రూపాంది
యున్నాఁడు.

सिनेमा से लाभ व हानियाँ

by

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मनुष्य आराम से अपना जीवन बिताना चाहता है। वह उसमें एक प्रकार की एकता आती दिखाई उसे तो य तीनो चीजें बहुत जरूरी हैं—खाना, पढ़ती है। फिल्म देखने से विज्ञान के चमत्कार कपड़ा और घर। लेकिन मनुष्य की आवश्यक वस्तुओं को संख्या दिन व दिन बढ़ता और अन्य महत्वपूर्ण बातों का भी ज्ञान हथे प्राप्त जाता है। एक जगह से दूसरी जगह जाने के लिए, होता है। आजकल चित्रपट के द्वारा ग्रामवासियों उसे सवारी की जरूरत है; लंबी यात्रा की लिए जहाज और अपठित जनता में स्वास्थ्य के नियमों और या रेल गाड़ी की आवश्यकता है। ये ही नहीं, दिल- नागरिक के कर्तव्यों का बोध कराते हैं।

सभी स्कूल व कालेजों में चित्रपट के जरिये शिक्षा देने की प्रणाली (Visual Education) आमल में लाई गई है। सरकार की तरफ से भी ऐसी फिल्मों का निर्माण होने लगा है जो बच्चों और विद्यार्थियों को शिक्षाप्रद और अत्यंत उपयोगी हों। आजकल 'न्यूजरील' के द्वारा मुख्य घटनाओं जैसे स्वतंत्रदिवस-समारोह, खेल-तमाशे आदि का भी प्रदर्शन किया जाता है।

जीवनसंग्राम की कठिनाइयों का सामना करते हुए आगे बढ़ने की इच्छा ने प्रत्येक व्यक्ति के दिल में घर कर लिया है। पर वास्तव में मन और शरीर को यथार्थ शांति तो मिलती नहीं। जीवन को थोड़ी देर सुखी बनाने के लिए मनुष्य चित्रपट देखता है। उस समय वह दूसरी दुनिया में विचरण करता है और अपना दुख भूल जाता है। मनोरंजन के अलावा सिनेमा से कई लाभ और होते हैं। दूर दूर के देशों के लोगों के बारे में हम बहुत की बातें जान सकते हैं। भाषा, भेष व मजहब के कारण जन-समुदाय में जो भिन्नता है

जहाँ लाभ है वहाँ हानि भी नजर आती है। खेद में कहना पड़ता है कि हमारे देश में सिनेमाओं का दुरुपयोग किया जा रहा है। हमारे यहाँ अधिकांश फिल्मों ऐसी ही तैयार की जाती हैं जिसे दर्शक गणों के मन में बुरी भावनाएँ जाग उठें। ये फिल्में तो खूब चलती हैं और फिल्म-मालिक भी माला-माल हो जाता है। लेकिन इन भद्दी चित्रपटों का नवयुवकों और युवतियों पर बहुत बुरा प्रभाव पड़ता है। इस कारण कई लोग चरित्रहीन बन जाते हैं।

अक्सर सिनेमा जाने से हमारा स्वास्थ्य भी बिगड़ जाता है। बिजली की चकाचौंद से आँखों की दृष्टि कमजोर हो जाती है। व्यर्थ में पैसे का भी खर्च हो जाता है। अलावा इसके सिनेमा के प्रचार से नाटकों का तो लोप सा हो गया है। हमारे देश में प्राचीन नाटकों का प्रधान उद्देश्य था जन साधारण के सामने श्रेष्ठ नैतिक आदर्श उपस्थित करना। ऊँचे दर्जे के नाटकों को देखने से मनुष्य को अपना जीवन पवित्र रखने और आचरण सुधारने का मौका मिला। जब नाटक का ही लोप हो गया तो आदर्श जीवन की क्या ?

इसलिए हम चाहते हैं कि चित्र-मित्रारे व कुशल अभिनेता चित्रपट को लोकप्रिय व सफल बनाने की धुन में उसे दूषित न करें। ऐसी फिल्में तैयार करें जिनसे मजे के साथ साथ उच्च शिक्षा भी प्राप्त होवे। कहीं ऐसा दृश्य न हाव जिसको देखने से दर्शकों के मन बिगड़ जाने का डर हो। फिल्म सेन्सार् बोर्ड भी अपने कर्तव्य का ठीक तरह से पालन करे ताकि कभी भद्दी फिल्मों का कहीं प्रदर्शन न किया जाय।

Twentieth Century View Point of Mathematics

by

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A famous seventeenth century writer on mathematics and science wrote "Mathematicians are like lovers. Grant a Mathematician the least principle, and he will draw from it a consequence which you must also grant him, and from this consequence another". Thus Mathematics is a method of inquiry. We carefully formulate definitions of the concepts to be discussed and state explicitly the assumptions involved. From these definitions and assumptions, conclusions are deduced by the application of the most rigorous logic.

Quite often, mathematics, is regarded as a series of techniques. But the techniques are indeed the least important part of mathematics. The techniques are mathematics stripped of motivation, reasoning, beauty and significance.

Mathematics tries to answer questions arising directly out of social needs. Mathematics is a universal tool in the construction of bridges, and dams, in commercial and financial transactions, in navigations and Calendar reckoning. It is in fact needed in numerous other human pursuits.

Besides, mathematics provides a basis for physical sciences. The physical sciences have been freely dawning upon the concepts, methods and conclusions of mathematics. Mathematics lends coherence to facts and observations (sometimes disconnected and detached) and helps in the moulding of these into a body of science.

Mathematics has advanced because of the wonderful imaginative powers of great mathematicians. Kepler, Newton and Einstein for example were able to set up new and revolutionary concepts requiring an extraordinarily

high order of intuition and imagination. If today we can reckon nearly eighty extensive branches of the subject, it is proof positive about the extent to which the creative faculties of man are exercised in mathematics. As a matter of fact, many of the greatest contributions to the subject matter of mathematics—Projective geometry, the theory of number and the theory of infinite quantities constitute responses to purely intellectual challenges.

I would like to refer to a charge frequently made that mathematicians like to indulge in pointless speculations. But strange as it may seem, it is these speculative questions that have been responsible for some of the far reaching discoveries. It is remarkable to recall that the whole subject of probability, important as it is to-day, began with a question arising in a game of cards, namely the proper division of a gambling stake in a game interrupted before its close. The discovery of the conic sections, which for two thousand years amounted to no more than "the unprofitable amusement of a speculative brain" ultimately made possible modern Astronomy, the theory of Projectile motion and the law of Universal Gravitation.

Again, the non-Euclidean geometries which were investigated originally for the sake of what seemed to be an interesting logical nicety, proved to have incomparable importance. It came to be realised that the non-Euclidean geometries could be valid descriptions of physical space. These new geometries provided the best example of the power of the human mind, for the mind had to defy and overcome habit, intuition, sense perceptions to produce these geometries. It is possible to say with George Cantor. "The essence of mathematics is its freedom".

THE GRAMOPHONE

by

A. V. S.

History. From the beginning of the nineteenth century various attempts have been made to record sound. In 1857, an Irishman named Scott invented a machine called **phonautograph** which could record sound. The credit of recording sound first thus goes to this Irishman. But Scott's machine could not reproduce or play back the sounds. In 1878, the famous American Thomas Edison invented his **phonograph**. This machine could perform both the functions of recording and reproducing sound. The first words actually reproduced by Edison's machine were—*Mary had a little lamb*. In 1887, another American named Berliner effected very many improvements on Edison's machine. He took out a patent for his improved machine under the name **gramophone**—an inversion of Edison's **phonograph**!

Technique. Sound is produced by a body executing transverse or longitudinal vibrations whose frequency lies within the limits of audibility. A material medium, usually air, is required for the propagation of sound from the sounding source to the ear of the hearer. Other media like water, earth, the rails of a railway line, the bones of our head, etc, also transmit sound. Because sound waves set the objects on which they strike in vibration. In the older type of gramophones, there was a thin metal plate called the diaphragm within the horn. When the singer sang into the horn, the sound waves set the diaphragm vibrating. These vibrations operated a needle which cut grooves of (recorded) the sound waves on a rotating wax disc. When the needle again moved along the grooves with the same speed the vibrations were converted into sound waves by the sound box of the machine and given out through a horn.

Mechanism. Scott used a rotating cylinder coated with lamp black and a hog's hair bristle attached to a parchment in his **phonautograph**. The lamp black coating was the writing paper, the parchment was the vibrating diaphragm, and the bristle was the pen. Edison used a tin-foil instead of lamp black and a metallic needle instead of the bristle. During recording, the needle cut perpendicular or 'hill and dale' grooves in the tin-foil. Berliner replaced the cylinder with a metal disc coated with wax, which was made to rotate in a horizontal plane about a vertical axis. His cutting needle made lateral or side to side recordings. Both these machines were hand driven and an operator had to rotate the handle continuously. In 1898, Berliner used clock work to rotate the disc. This was the beginning of the H.M.V. model.

Duplicating. There were no means of duplicating the records in the earlier days. A song had to be recorded by as many machines as the number of records required. Later, it was found that a duplicate in copper could be produced from the wax record by the process of electroplating. From this 'master record' a mould could be made from which any number of records could be produced. When the process of duplicating of records gained ground, there was the necessity only for a reproducing machine, namely, the present day gramophone, for the general public.

Electrical Records. Electrical recording was introduced in 1924. The microphone stepped into the place of the horn. The thermionic valve came in for amplification. During recording the microphone picks up the sound waves and converts them into electric currents, which operate the vibrations

of the recording needle. During reproduction, the vibrations of the needle moving along the groove are communicated to a pick up which transmit the corresponding electric vibrations to the amplifiers. These amplified vibrations are transmitted to a loudspeaker from which they issue as the original sound. The motor of the mechanism is also run electrically. These electrical records are louder and more faithful to the original than the records produced by the older mechanical methods.

Tape-Recording. The tape-recorder is used now-a-days to record public speeches, commentaries and other functions. This modern instrument has come to stay. In this instrument, recording is done by magnetising a metal tape or wire or a paper tape coated with a magnetic metallic powder. Sound waves picked up by a microphone produce corresponding variations in the current passing through an electro-magnet. In reproducing sound, the variations in the magnetism of the tape are utilised to produce currents of corresponding strength, which when amplified and fed into a loudspeaker give back the original sound.

Potentialities. Neither Edison nor Berliner could have imagined for a moment that their inventions were destined to grow into an

industry, the potentialities of which has taken the world by surprise. Edison thought that his phonograph would at best find a place as a dictating machine in offices! Berliner thought that his gramophone could ultimately find a place in the manufacture of talking dolls! The potential value of the gramophone as a means of entertainment was realised only when great artists like Caruso and Melba recorded their voices in the beginning of the present century. Since then, a vast number of orchestral, vocal and talkie records of all kinds have been recorded—some to stay and some to disappear into oblivion.

Wide Scope. The scope of sound-recording is indeed, very wide at the present day. Records of plays and concerts, speeches and music, the sounds of birds and animals, and the noise of big crowds on great occasions can be preserved as a documentary picture of our times to be played back and used with advantage by posterity. The gramophone is also being used for making 'talking books, for the blind and for teaching correct pronounciation of foreign languages. Also, as if to fulfil Edison's wish, his phonograph has reappeared in a modern garb with the modern name of dictaphone to be used in large offices for dictating letters!

Electromagnetic Radiations

by
A. V. S.

The forms of radiation familiar to the 17th century scientists were heat and light. According to the wave-theory, these radiations reach us with a velocity of 186,000 miles/sec. or 3×10^{10} cm./sec. The electromagnetic theory of light put forward by Maxwell in the 19th century suggested that not only light, but all other types of radiations also, like heat, X-rays, ultra-violet rays, wireless waves etc., are propagated in the form of electromagnetic waves. The lengths of these waves could be measured very accurately. The discovery of wireless waves in 1888, X-rays in 1895, γ -rays in 1900 and cosmic rays in 1920 and their wavelengths obtained by careful measurements amply justified

Maxwell's assumption. If the wavelength is between 0.0004 m.m. and 0.0007 m.m. our eye sees the radiations as light. If it is longer our skin perceives it as heat. We have also radiations whose wave-lengths are far shorter and far longer than the above.

Electro-magnetic Spectrum. Just as visible light split up broadly into seven groups of waves of varying wavelengths is called visible spectrum, similarly electro-magnetic radiations split up into different groups of waves of different wavelengths is called an Electro-magnetic Spectrum. The following table gives the wavelengths of the different types of radiations.

Electro magnetic waves.

Wavelength in millimeters.

1. Cosmic Rays.

[These are emitted by some source outside the earth. They are able to penetrate through several yards of lead.]

0.00000000004 (average)
 0.0004×10^{-8} c.m. or
0.004 A.U. ($\because 10^{-8}$ c.m. = 1 A.U.)

2. Gamma Rays (γ -rays).

[These are emitted by radio-active substances like radium, uranium, etc.]

0.000000002 (average)
 0.02×10^{-8} c.m. or 0.02 A.U.

3. Rontgen Rays (X-rays).

[These are used in medicine and surgery and for seeing through or photographing opaque objects.]

0.0000001 (average)
 1×10^{-8} c.m. or 1 A.U.

4. Ultra-Violet Rays.

[These are invisible to the eye; they affect photographic plates. They are plentiful in sunlight. They are beneficial to the human body in which they produce vitamin D.]

0.0002 (average)
 2000×10^{-8} c.m. or 2000 A.U.

5. Light Rays.

(a) Violet

... 0.0004 (average)
4000 A.U.

(b) Indigo

... 0.00043 (")
4300 A.U.

Electro-magnetic waves.**Wavelength in millimeters.**

(c) Blue	...	0.00045 (") 4500 A.U.
(d) Green	...	0.0005 (") 5000 A.U.
(e) Yellow	...	0.00058 (") 5800 A.U.
(f) Orange	...	0.00062 (") 6200 A.U.
(g) Red	...	0.00072 (") 7200 A.U.

6. Infra-red Rays.

[These are invisible heat rays. They penetrate fog better than light. These are used for photography with special plates and films—medicinally useful.]

0.001 (")
10000 A.U.

7. Wireless Waves.

[Used for Broadcasting]

... 0.2 m.m. to 2000 metres.

Wave and Corpuscular Theories in Physics

by

G. VENKATESAN, B.SC. (HONS.),
Ex-Lecturer in Physics.

There is an ancient saying that contradiction promotes progress, and this has been proved to be so, as far as the science of Physics is concerned. The two theories were so useful in explaining the same phenomenon that in the beginning of the Twentieth century a new development took place, blending the two to form the so called 'Wave Mechanics'.

A theory must satisfactorily explain all the features associated with a physical phenomenon. Matter has been shown to be made up of small particles and the properties of matter were studied on this assumption. Light is a form of radiation. Light has been shown to travel approximately in straight lines, and eclipses were cited as examples to illustrate this. Newton took up the idea and assumed the propagation of light as due to a shower of particles emitted from the source. With this assumption all laws in Geometrical Optics were derived. He was successful in explaining the reflection of light. In the case of refraction of light he was able to show that the ratio of the sine of the angle of incidence bears a constant ratio to the sine of the angle of refraction. But the problem of partial reflection and refraction puzzled him. He introduced the idea of 'fits' to account for them. To a pure Physicist it would seem illogical to assume that particles are under 'fits' according to the circumstances.

By that time Young had discovered 'interference' and Newton's corpuscular theory failed to give a satisfactory explanation. Young had assumed the propagation of light as due to wave motion, the waves being started from the source, and successfully accounted for the variation of intensity. With the advent of 'diffraction' the wave

theory established a strong foot hold in Light.

But the discovery of 'photo-electricity' came to the rescue of the corpuscular theory. The classical theory gave utterly incongruous, incompatible and fantastic results in direct contradiction to the experimental results. For example, the classical theory gave the time interval between the incident radiation falling on the photo-sensitive surface and the release of a photo-electron to be about 500 days, whereas practically it is observed that there is no time lag. In corpuscular theory light is assumed to consist of small corpuscles called Photons and their energy is $h\gamma$ where h is called Planck's constant and γ the frequency of incident radiation. One of the criticism levelled against this is that when we assume light to be composed of Photons, the term frequency loses its significance for it is always associated with wave motion.

Sir J. J. Thomson discovered the electron. They are negatively charged particles. Experiments with Crooke's tube showed that they cast a shadow when an object is placed in their path, indicating that they travel approximately in a straight line. Thus the conception of electron as a particle was gradually established. From indirect experiments its mass was found to be 9.108×10^{-28} grams.

In 1927 two American Scientists Davisson and Germer carried out experiments on reflection of electrons from metal targets. The intensity instead of decreasing from the position of maximum reflection showed striking maxima and minima indicating that electrons possess wave aspects also. In 1928 G. P. Thompson in Scotland found that electrons can be diffracted. Thus there were two

experiments firmly supporting the wave aspects of the electron. Here again Scientists who advocated arguments for the particle aspect of electron felt uneasy. Some people even humourously remarked that electrons behave like particles on Mondays and Wednesdays and as waves on Tuesdays and Fridays.

This dilemma in Physics was cleared by Louis De Broglie who in his Doctorate thesis gave the suggestion that just like waves possess particle properties it is reasonable to expect particles to possess wave characteristics. He drew analogy between the Maupertian principle of least action in Mechanics and Fermat's principle of least time in Optics. De Broglie said that there is an intimate connection between waves and corpuscles not only in the case of radiation but also in the case of matter. A moving particle of matter

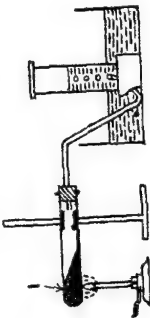
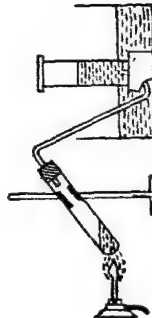
has always got a wave associated with it and the particle is controlled by the wave in a manner similar to that in which a photon is controlled by the waves. The energy, mass, momentum and charge in the case of charged particles are due to the particle and when the question of direction of movement, reflection, refraction or interference comes in we have to look to the wave theory. Thus he reconciled both the rival theories and introduced the concept of 'Matter Waves' the wave-length of a particle of matter moving with velocity v is h/mv where m is the mass of particle and h the Planck's constant.

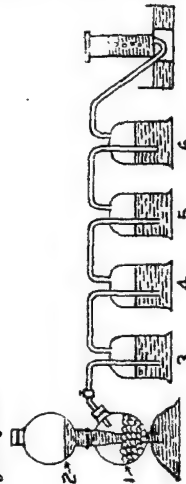
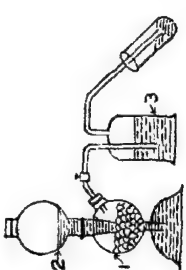
Thus the age long dispute between corpuscular and wave theories has been settled by the ingenious conception of De Broglie and has opened a new era in Physics called 'the Era of Wave Mechanics'.

Preparation and Properties of Gaseous Compounds - (P.U.C.)

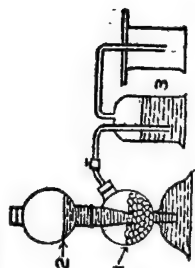
by

G. VENKATESWARLU, B.Sc. (HONS.)

Revision Study	Methods of Preparation	Properties
<p>Oxygen:</p>  <p>(1) Oxygen Mixture ($\text{KClO}_3 + \text{MnO}_2$)</p>	<p>$2\text{KClO}_3 + (\text{MnO}_2) \rightarrow 2\text{KCl} + 3\text{O}_2$ + (MnO₂) catalyst Collected over water—Dried with conc. H_2SO_4 or CaCl_2 or P_2O_5.</p>	<p><i>Physical:</i> Colourless tasteless and odourless gas; sparingly soluble in water. Slightly heavier than air. $d = 1.43\text{g/Litre}$. $\text{MP} = -218^\circ$. $\text{BP} = -183^\circ$.</p> <p><i>Chemical:</i> Supporter of life and combustion Na, K, P, S, Mg — burn to form Oxides. Others on heating in Oxygen become Oxides.</p> <p><i>Acidic Oxides:</i> Non-metallic Oxides SO_2, CO_2, SO_3, P_2O_5, P_2O_3.</p> <p><i>Basic Oxides:</i> Metallic Oxides—Na_2O : K_2O : MgO : CaO.</p> <p><i>Amphoteric Oxides:</i> ZnO : PbO : SnO : SnO_2 : Al_2O_3.</p> <p><i>Neutral Oxides:</i> N_2O.</p> <p><i>Saline Oxides:</i> Fe_2O_3 : Mn_2O_3.</p> <p><i>Uses:</i> High temperature production: Aid to life in sickness in mountaineering, high altitude flying, in the manufacture of steel: Rocket engines. *</p>
<p>Nitrogen:</p>  <p>Sodium Nitrite + Ammonium Chloride</p>	<p>$\text{NaNO}_2 + \text{NH}_4\text{Cl} \xrightarrow{\text{heat}} \text{NaCl} + \text{N}_2 + 2\text{H}_2\text{O}$ $\text{K}_2\text{Cr}_2\text{O}_7 + 2\text{NH}_4\text{Cl} \xrightarrow{\text{heat}} 2\text{KCl} + \text{Cr}_2\text{O}_3 + \text{N}_2 + 2\text{H}_2\text{O}$ Collected over water: dried with conc H_2SO_4, CaCl_2 or P_2O_5</p>	<p><i>Physical:</i> Colourless: Tasteless: Odourless gas; sparingly soluble in water. Slightly lighter than air $d = 1.25\text{ g/L}$. $\text{MP} = -210^\circ\text{C}$ $\text{BP} = -196^\circ\text{C}$.</p> <p><i>Chemical:</i> Not combustible nor a supporter of combustion</p> <p>Combines with H_2, Mg, Zn, Ca to form Nitrides</p> <p>With CaC_2—it forms CaCN_2.</p> <p><i>Uses:</i> Manufacture of NH_3 and compounds—fertilisers and explosives: Nitrogen filled thermometers: Manufacture of Nitric acid and Nitrates. *</p>

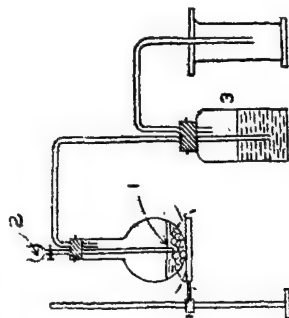
Revision Study	Methods of Preparation	Properties
<p>Hydrogen :</p>  <ol style="list-style-type: none"> (1) Zinc granules (2) Dilute Sulphuric acid (3) Lead Nitrate Solution (4) Silver Sulphate Solution (5) Alkaline Potassium Permanganate solution (6) Water 	<p>$\text{Zn} + \text{H}_2\text{SO}_4 \text{ dil} = \text{ZnSO}_4 + \text{H}_2$</p> <p>Purities</p> <p>$\text{H}_2\text{S}$ } 1. Lead Nitrate Soln. H_3As } 2. Silver Sulphate H_2P } Soln. CO_2, SO_2 3. Pot. Hydroxide etc. Soln. Reducing 4. Pot. Permanganate gases rate Collected over water Dried over CaCl_2 or P_2O_5 On a large scale prepared by electrolysis of acidified or alkaline water.</p>	<p>Physical: Colourless tasteless and odourless gas, sparingly soluble in water lightest gas $d = 0.089$ glitre. $\text{MP} = -259^\circ\text{C}$ $\text{BP} = -253^\circ\text{C}$.</p> <p>Chemical: Burns with a blue flame to form water: Forms explosive mixture with air and oxygen.</p> <p>Combines with non-metals like Cl, Br, I, S, N and metals like Na & K & Ca to form Hydrides.</p> <p>Metallic Hydrides—NaH, KH, CaH_2, are decomposed by water.</p> <p>Reduces oxides, sulphides and chlorides of metals like Cu, Ag, Pb, to the metals.</p> <p>Nascent Hydrogen: Reduces acid KMnO_4, FeCl_3, $\text{K}_2\text{Cr}_2\text{O}_7$.</p> <p>Uses: Prepn of HCl, NH_3. Explosives, Fertilisers: Organic compounds Oxy-hydrogen blow pipe and atomic hydrogen Torch: Daldia.</p>
<p>Hydrogen Sulphide :</p>  <ol style="list-style-type: none"> (1) Iron Sulphide lumps (2) Dilute Hydrochloric acid (3) Water 	<p>$\text{FeS} + 2\text{HCl dil} = \text{FeCl}_2 + \text{H}_2\text{S}$</p> <p>Purification —</p> <p>(1) Liquefaction</p> <p>(2) $\text{Mg} (\text{OH})_2 + 2\text{H}_2\text{S}$</p> <p>Cold \rightarrow \rightarrow Hot \leftarrow Cold</p> <p>$\text{Mg} (\text{HS})_2 + 2\text{H}_2\text{O}$</p> <p>Preparation of pure H_2S:</p> <p>$\text{Sb}_2\text{S}_3 + 6\text{HCl Conc} \xrightarrow{\text{Hot}} 2\text{SbCl}_3 + 3\text{H}_2\text{S}$</p> <p>Collected over hot water or by displacing air Dried over Silica</p>	<p>Physical—Colourless, smell of rotten eggs, poisonous, fairly soluble in cold water. Heavier than air. Decomposes in a hot tube into H_2 & S.</p> <p>Chemical: Burns with a pale blue flame to SO_2 and H_2O in excess of air and S and H_2O in limited supply of air, $\text{MP} = -83^\circ\text{C}$ $\text{BP} = -61^\circ\text{C}$.</p> <p>Acidic properties: Absorbed by NaOH: KOH $(\text{NH}_4)\text{OH}$—Salts are sulphides and hydro-sulphides.</p> <p>H_2S pptates insoluble sulphides when passed through metallic salt solutions ZnS—White; MnS: flesh; Sb_2S_3 orange—As_2S_3—Yellow; CuS, HgS: PbS: Ag_2S—black.</p> <p>Reducing action: Acid KMnO_4: acid $\text{K}_2\text{Cr}_2\text{O}_7$ acid FeCl_3. Cl_2: Br_2: I_2 solutions are reduced S is got.</p> <p>Uses: Analytical reagent.</p>

Carbon Dioxide:



- (1) Marble pieces
- (2) Dilute Hydrochloric acid
- (3) Concentrated Sulphuric Acid

Hydrogen chloride:

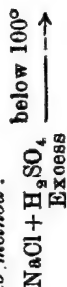


- (1) Common Salt
- (2) Conc Sulphuric Acid
- (3) Do.

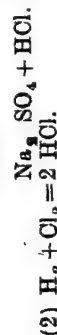
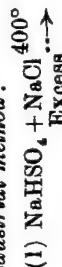
$\text{CaCO}_3 + 2\text{HCl dil} = \text{CaCl}_2 + (\text{H}_2\text{O} + \text{CO}_2)$ Marble
Collected by the displacement
of air—Dried with H_2SO_4 , P_2O_5
 CaCl_2 , etc.
On a large scale prepared by
heating limestone

* * *

Lab method:



Industrial method:



Physical: Colourless tasteless and odourless gas—fairly soluble in water forming acidic solution. Heavier than air.
MP = -102°C , BP = -34°C .

Chemical: Neither a supporter of combustion nor combustible—but decomposed by Na, K and Mg.

Acidic properties: Solution is acidic to litmus—Salts are called carbonates and bicarbonates. Absorbed by NaOH, KOH, Ca (OH) $_2$, Ba(OH) $_2$.

Uses: Aerated water. Dry ice—food preservation—refrigerant. Fire extinguisher. Prep of carbonates and bicarbonates.

* * *

Physical: Colourless gas pungent smell fuming in air. Highly soluble in water forming an acidic solution. constant boiling mixture with a maximum boiling point 20.24°C — 110°C . MP = -111° , BP = -85°C .

Chemical: It is neither a supporter of combustion, nor combustible.

Acidic Properties: Solution is acidic to litmus. It forms salts called chlorides. It reacts with alkalis to form salts. It gives Hydrogen with metals like Mg, Al, Zn; Fe Sn etc.

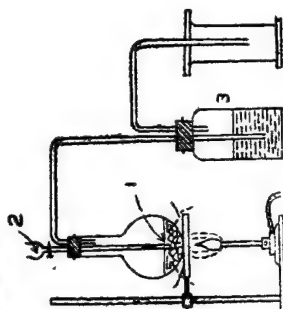
Reducing properties: It is oxidised to chlorine by MnO_2 , PbO_2 , Pb_3O_4 , BaO_2 , KClO_3 , CaOCl_2 , KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$. $2\text{HCl} + \text{O} = \text{H}_2\text{O} + \text{Cl}_2$.

Uses: Lab reagent volumetric analysis purification of sand and minerals; Preparation of chlorides aquaregia.

* * *

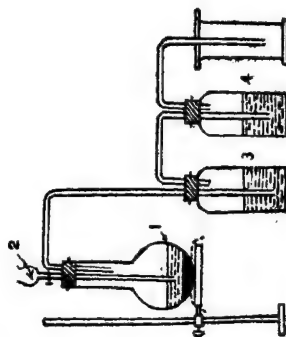
Revision Study

Sulphur Dioxide:



- (1) Copper Turnings
- (2) Cono Sulphuric Acid
- (3) Do.

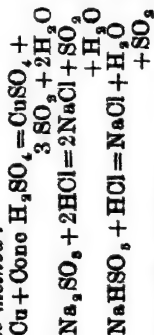
Chlorine:



- (1) Potassium Permanganate Crystals
- (2) Concentrated Hydrochloric Acid
- (3) Water
- (4) Concentrated Sulphuric Acid

Methods of Preparation

Lab method:



Industrial method:

Burning Sulphur or Roasting Pyrites and Sulphide ores

Properties

Physical properties: Colourless gas: Suffocating smell, blood poison; soluble in water forming acidic solution. More than twice as heavy as air. MP = -76°C BP = 11°C .

Chemical: Neither a supporter of combustion nor combustible but it supports the combustion of NaK, and Mg.

Acidic properties: Solution acidic to litmus—gives hydrogen with metals like magnesium; forms salts with alkalis—called sulphites and bisulphites.

Bleaching and reducing properties: $\text{H}_2\text{O} + \text{SO}_2 + \text{O} = \text{H}_2\text{SO}_4$.

Reduces KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$, Cl_2 , Br_2 and I_2 . Addition with Cl_2 and O_2 to form SO_2Cl_2 and SO_3 with catalysts.

Uses: Manufacture of sulphites, bisulphites, sulphates, sulphuric acid, manures, explosives. Bleaching silk: Paper Refrigerant. *

Physical: Greenish—yellow gas. Suffocating smell, poison, attacks mucous membrane of the respiratory tract—solution is called chlorine water.

More than twice as heavy as air. MP = -102°C BP = -34°C .

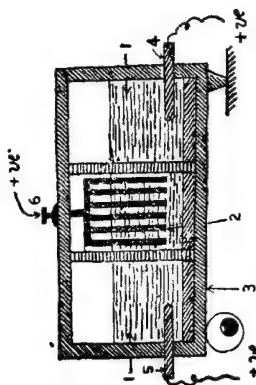
Chemical—Oxidising agent:

(1) Addition of negative element is oxidation. Metals and Non metals combine to form Chlorides: As and Sb catch fire.

(2) Removal of Hydrogen or positive element is oxidation— H_2S , NH_3 , $\text{C}_{12}\text{H}_{11}$, KBr , KI .

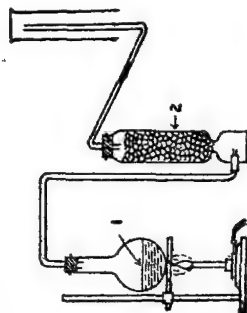
(3) Moist chlorine gives Nascent oxygen for oxidation S, P, I, are oxidised to H_2SO_4 , H_3PO_4 , HIO_3 etc. Sulphites, Sulphides, Arsenites and nitrites thio sulphates are oxidised.

(4) Bleaching agent—Most powerful bleaching action on cotton.



- (1) Common Salt Solution
- (2) Dist. Water
- (3) Mercury
- (4) Carbon Anodes
- (5) Do.
- (6) Iron Cathodes

Ammonia:



- (1) Slaked lime + Ammonium Chloride
- (2) Quick lime (CaO)

Industrial method:

Electrolysis of NaCl (Purified common salt solution)

Precautions to be taken during Preparation—Poisonous Gas)

(5) With alkalis—cold and dilute—chlorides and hypochlorites.

With hot and concentrated alkalis—chlorides and chlorates.

With dry slaked lime gives bleaching powder.
Uses: Preparation of chlorides, chlorites, hypochlorites chlorates perchlorates and organic-chlorine compounds—water treatment—Bleaching.

Lab method:



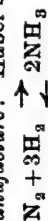
Slaked

Lime

Ammonia
Collected by the downward displacement of air or upward delivery

Dried with Calcium Oxide

Manufacture: Haber's Process



Catalyst—Fe, O₃ or Al₂O₃

Pressure—400—1000 atmos

Temp—400—700°C

*

*

*

Physical: Colourless gas: Pungent smell—Brings tears to the eyes. Lighter than air. Highly soluble in water forming alkaline solution not combustible

Basic anhydride MP = - 78°C, BP = - 34°C.

Chemical:—Neither a supporter of combustion. It burns in Oxygen with a yellow flame forming Nitrogen.

Basic Properties:—Solution is alkaline to litmus.

It precipitates insoluble metallic hydroxides.

It reacts with acids forming ammonium salts.

Reducing Properties: It reduces oxides, chlorides and sulphides to the respective metals on heating with them (just like with Hydrogen).

Uses: Fertilisers: Medicine: NH₄Cl is used as a flux in soldering.

Reagent: Manufacture of HNO₃.

Nitrates: NH₄NO₃—is an explosive.

Refrigerant.

CONCLUSIONS

All gases are colourless except chlorine

Odourless gases: H_2 , O_2 , N_2 , CO_2 .

Gases with smell: H_2S , HCl , SO_2 , NH_3 , Cl_2 .

Gases sparingly soluble in water and therefore collected over water: H_2 , O_2 , N_2 .

Gases fairly soluble in water: H_2S , CO_2 , SO_2 , Cl_2 .

Gases highly soluble in water: HCl , NH_3 (Fountain expt).

Gases which burn in air: H_2 , H_2S , (NH_3 in oxygen).

Gases which support combustion: O_2 and Cl_2 .

Acidic gases: CO_2 , HCl , H_2S .

Basic gases: NH_3 .

Reducing agents: H_2 , H_2S , NH_3 , HCl and SO_2 . (Reduce acid KMnO_4 , acid $\text{K}_2\text{Cr}_2\text{O}_7$, Br_2 and I_2).

Oxidising agents: O_2 , Cl_2 .

THE NITROGEN FAMILY

by

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Lecturer in Chemistry.

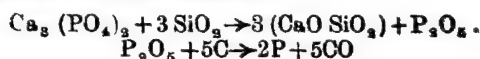
The series of elements, Nitrogen, Phosphorus, Arsenic, Antimony and Bismuth form a closely related family. A study of these elements and their compounds is interesting and instructive in the sense that it will form a sound basis to a recognition and understanding of the main characteristics of the Periodic Table which has brought about so much order and convenience in gaining a knowledge of the properties of various elements as hardly needs any further emphasis. The following brief discussion of the Nitrogen Family is, therefore, chiefly from the standpoint of the Periodic Table and only such information as will stress the periodic relationships of this family of elements is given.

Perhaps nowhere else in the Periodic Table can one find such an interesting family of elements as the Nitrogen Family, the first member nitrogen, a typical non-metal, showing properties that are in striking contrast with those of the last member of the family, bismuth, more or less a typical metal. The atoms of all these elements possess five electrons in their outermost electron orbits, and this is responsible for their exhibiting a maximum valency of five (except perhaps nitrogen) and for their being accommodated in the Fifth Group of the Periodic Table. Nitrogen and phosphorus, elements of the short periods of the Periodic Table, are the "typical elements" of the Group, arsenic, antimony and bismuth, members of even series of the Long Periods, forming the B Sub-Group. These elements occupy similar positions on the atomic volume curve (the ascending parts of the curve, just after a trough has been passed). The physical properties of these elements show a gradual increase in value with increasing atomic weight. The Table below gives the physical

constants and some of the characteristic physical and chemical properties of these elements. (See Table I.)

It may be noted that nitrogen does not exhibit allotropy, while phosphorus, arsenic and antimony form a fairly good number of allotropes. Bismuth also exists, like nitrogen, in only one form. Further more, nitrogen and bismuth differ from the other elements of the family in that they form diatomic molecules, while the molecules of phosphorus, arsenic and antimony are tetraatomic. However, all the elements form hydrides and oxides of the typical formulae XH_3 (with the possible exception of bismuth) and X_2O_5 respectively, which fact justifies, in conjunction with the electronic structure of their atoms, their inclusion in the same group (Fifth Group) of the Periodic Table.

The major proportion of the available nitrogen occurs free (in atmospheric air), but the other elements of the nitrogen family are found only in the form of their compounds. The isolation of these elements, however, presents no problem. Nitrogen is obtained on an industrial scale by fractional distillation of liquid air. The oxides of arsenic, antimony and bismuth are easily reduced by carbon or are precipitated from their solutions by iron. Calcium phosphate (in the form of bone-ash) is the chief raw material for the manufacture of phosphorus. A mixture of bone-ash, silica and coke is heated to a high temperature in an electric furnace. The silica displaces the acidic phosphorus pentoxide from calcium phosphate and the phosphorus pentoxide is at once reduced by the carbon present. The sequence of the reactions is :—



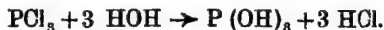
One of the chief characteristics of the Periodic Table is that the electropositive nature of the elements in a Group increases as the atomic weight increases. This is rather well illustrated by the hydrides of nitrogen family elements, in which they exhibit trivalency. Ammonia (NH_3) is quite stable, dissolves in water yielding an alkaline solution and combines with acids producing salts. (For instance, $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$). Phosphine (PH_3) is rather feebly basic (inasmuch as phosphonium salts like PH_4I can be obtained), and practically insoluble in water. Arsine and stibine (AsH_3 and SbH_3) are notable for their instability, an ingenious application of which property is found in the famous Marsh-Berzelius Test for the detection of arsenic and antimony. They easily decompose into their elements on heating. Bismuth hydride (by analogy with ammonia, arsine and stibine, supposed to be BiH_3), if at all it exists, is too unstable to be isolated.

Moreover, the reducing properties of these hydrides, associated with their instability, become more and more pronounced as the atomic weight of the element rises. Whereas ammonia is comparatively stable and shows only mild reducing properties, phosphine is a strong reducing agent, and arsine and stibine are still more powerful reducing agents. The reduction reactions of these hydrides are indicated in the following Table which also points out the gradual increase in the values of certain physical constants with increase of atomic weight and gives the important methods of preparation of these compounds. (See Table II.)

Thus, the stability and basicity of these hydrides clearly indicate the gradual transition from non-metallic properties in nitrogen (stable hydride) to metallic properties in bismuth (unstable hydride). It may be added that nitrogen and phosphorus also form hydrides like N_2H_4 and P_2H_4 , but that the formal analogy between these two hydrides can no further be extended to their properties

and that the other elements of the family form no such type of hydrides.

The halides of these elements may be considered with profit. Nitrogen does not form any stable halides. Nitrogen trichloride is prepared under carefully controlled conditions and is dangerously explosive in its reactions. The alternate elements nitrogen, arsenic and bismuth form only trichlorides (arsenic gives rise to a pentafluoride, AsF_5), and the remaining elements, phosphorus and antimony, form tri- and penta-chlorides. The action of water on these chlorides points out the gradual change from non-metallic properties in phosphorus to metallic properties in antimony and bismuth. While nitrogen trichloride is only slowly attacked by water, phosphorus tri- and penta-chlorides are completely and irreversibly hydrolysed. Arsenic trichloride is also hydrolysed by water, but it can exist in aqueous solution in the presence of an excess of acid. Antimony and bismuth chlorides undergo only partial hydrolysis, and the reactions, which involve the formation of white insoluble basic salts, are readily reversed.



Phosphorus trichloride Phosphorus Acid.



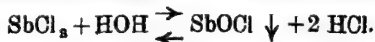
Phosphorus pentachloride Phosphorus oxychloride.



Ortho-Phosphoric Acid.



Arsenic trichloride Arsenious Acid.

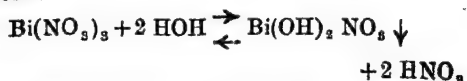


Antimony trichloride Antimonyl chloride
or Antimony oxychloride.

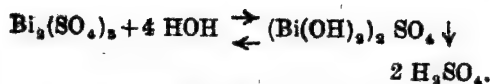


Bismuth trichloride Bismuthyl chloride
or Bismuth oxychloride.

Other bismuth salts behave similarly towards water:



Bismuth Nitrate Bismuth oxynitrate
or Basic bismuth nitrate.

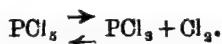


Bismuth sulphate **Bismuth oxysulphate**
or **Basic bismuth sulphate.**

These hydrolysis reactions of antimony and bismuth salts are so characteristic that the action of water is sometimes employed as one of the tests for their salts, when a white precipitate will be obtained if they are present.

Judging from the hydrolytic behaviour of these halides, arsenic forms a link between the pairs of elements, nitrogen and phosphorus, which are non-metals, and antimony and bismuth, which are metals. Arsenic may, therefore, be called a metalloid, since it shows the properties partly of metals and partly of non-metals. That it can rightly be called a metalloid will be further evident from a closer study of the properties of the elements of the nitrogen family and their compounds.

It may be indicated that PCl_5 and SbCl_5 , the penta-halides of phosphorus and antimony, undergo partial dissociation on heating, that of PCl_5 being complete above 300°C .



The oxides of nitrogen are numerous. Two of them are N_2O_3 and N_2O_5 (the trioxide and the pentoxide) which give rise to nitrous acid, HNO_2 , and nitric acid, HNO_3 , respectively. (NO_2 , is a mixed anhydride, yielding both HNO_2 and HNO_3 with water.) The well-defined oxides of phosphorus, P_2O_3 and P_2O_5 (the trioxide and the pentoxide) are also acidic. The oxides of arsenic and antimony (As_2O_3 and Sb_2O_3) are amphoteric, while Bi_2O_3 is basic. The higher oxides, As_2O_5 , Sb_2O_5 , etc. are acidic. Phosphorous acid and Orthophosphoric acid, H_3PO_3 and H_3PO_4 , (obtained from P_2O_3 and P_2O_5) are very similar in their properties to the arsenious and arsenic acids, H_3AsO_3 and H_3AsO_4 , (obtained from

As_2O_3 and As_2O_5) respectively. Antimony also forms a set of similar acids. H_3SbO_3 , antimonous acid, from Sb_2O_3 and H_3SbO_4 , antimonic acid from Sb_2O_5 .) The amphoteric character of arsenic and antimony, it may be noted, bridges the acidic nature of nitrogen and the basic nature of bismuth.

The close relationship that exists between Phosphorus and Arsenic may be traced in some detail. The phosphates and arsenates of most metals (except, of course, Na , K , NH_4 , etc.) are insoluble. They are isomorphous and possess similar formulae. ($\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$ and $\text{N}_2\text{HAsO}_4 \cdot 12\text{H}_2\text{O}$). The familiar compounds magnesium ammonium phosphate and magnesium ammonium arsenate, MgNH_4PO_4 and $\text{MgNH}_4\text{AsO}_4$ obtained as white crystalline precipitates on adding a solution of phosphate and arsenate respectively to magnesia mixture ($\text{MgSO}_4 + \text{NH}_4\text{Cl} + \text{NH}_4\text{OH}$) are worthy of notice in this connection. A similar set of compounds with similar properties is the pair—Ammonium phosphomolybdate and Ammonium arsenomolybdate. They are obtained as canary yellow precipitates on treating a nitric acid solution of ammonium molybdate with phosphate and arsenate respectively. The only difference between these two substances is that the former is precipitated in the cold, while the latter requires boiling for some time. Phosphates and arsenates can be distinguished, however, by the fact that arsenates alone are reduced to arsenites and then precipitated as arsenic sulphide, by the action of hydrogen sulphide in acid solution. Furthermore, arsenites and phosphites are reducing agents.

The first member of any family of elements differs in its properties from those of the following members. It further shows properties that are similar to those of an element in an adjacent group of the periodic table. Nitrogen, the first member of the family of elements now under discussion, is no exception but only serves to illustrate this characteristic of the Periodic Table.

-In fact, nitrogen and phosphorus exhibit a radical behaviour, which is manifested in their conspicuous ability to form such compounds as N_3H_4 , P_3H_4 , and a number of oxyacids, the types of which are unrepresented in the case of Arsenic, Antimony and Bismuth, the remaining elements of the family. The sulphides of nitrogen and phosphorus are noted for their instability, ease of hydrolysis and their more or less complex constitution. However, while Phosphorus can clearly be regarded to resemble Arsenic, Antimony and Bismuth in many of its properties, nitrogen does not show any resemblance to the rest of the elements of the family except in the formation of the hydride and oxide (NH_3 , Ammonia and N_2O_5 , Nitrogen pentoxide respectively), typical compounds of the Fifth Group of the Periodic Table. This solitary nature of Nitrogen is apparent in its exclusive ability to form such compounds as Hydrozoic acid HN_3 , hydrazine N_2H_4 , Hydroxylamine NH_2OH , Hyponitrous acid $H_2N_2O_2$, Hydronitrogens (similar to hydrocarbons, which are characterised by chains of nitrogen atoms linked directly to one another) and also in the ability of NH_3 to form complex compounds (ammines) or co-ordination compounds.

Attention may now particularly be drawn to the difference in properties between Nitric Acid and Phosphoric acid and the corresponding oxides or acid anhydrides. Nitrogen Pentoxide (N_2O_5) is volatile, decomposed by heat, and gives rise to but one acid Nitric acid (HNO_3). Phosphorus pentoxide (P_2O_5), on the other hand is a solid that is not decomposed by heat and it gives rise to a number of oxyacids (Meta-, Pyro-, and Ortho phosphoric acids). Nitric acid is a strong acid and an active oxidising agent; its reactions with metals are particularly complex, and the nitrates of all metals are water-soluble. Phosphoric acid is a weak acid, and many phosphates (except those of alkali metals and of NH_4 radical) are insoluble in water.

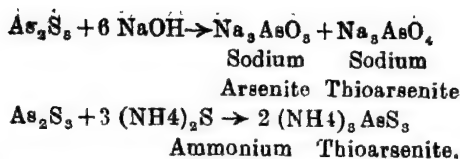
It is interesting to note, incidentally, that the acid producing properties of an element

are accentuated by an increase in oxygen content (or the number of hydroxyl groups attached to an atom of the element) as is evidenced by the properties of the basic Ammonia NH_3 and those of the strong acid, nitric acid ($N(OH)_5 - 2H_2O = HNO_3$). Similarly one can compare PH_3 and H_3PO_4 which is $P(OH)_5 - H_2O = H_3PO_4$.

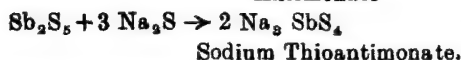
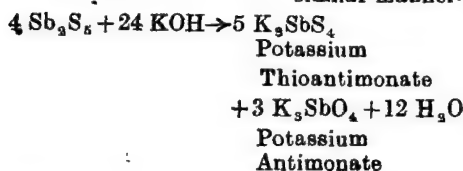
Nitrogen, it may be added, exhibits a more pronounced electronegative character than the members of the preceding groups namely Boron, Carbon and Silicon do. While the acids formed by these elements (Boric acid, carbonic acid, etc) are weak, nitric acid is one of the strongest acids known. This fact serves to indicate that the acid producing properties (or electronegative character) increase with increasing atomic weight of the element along any given period of the Periodic Table.

Nitrogen of the Fifth group resembles carbon and oxygen, members respectively of the Fourth and Sixth Groups of the Periodic Table. The hydronitrogens are structurally related to the hydrocarbons. Ammonia NH_3 and water OH_2 are wellknown as ionizing solvents and as giving rise to similar types of compounds with similar properties (hydroxides and amides, oxides and imides respectively).

Nitrogen and phosphorus stand apart, as already indicated, from the other elements of the family also when their sulphides are considered. The sulphides of Nitrogen and Phosphorus are unstable and are easily hydrolysed. The sulphides of Arsenic, Antimony, and Bismuth are stable and are not hydrolysed. They are formed either by direct combination of the elements or by passing hydrogen sulphide gas through acidified solutions of their salts. The gradual development of basic properties as the atomic weight of elements increases is well brought out by the behaviour of these sulphides towards alkaline reagents. Bismuth sulphide Bi_2S_3 is insoluble in alkalis and yellow ammonium sulphide, whereas Arsenic and Antimony sulphides, As_2S_3 and Sb_2S_3 , dissolve to give salts.



Sb_2S_3 reacts with $(\text{NH}_4)_2\text{S}$ in a similar manner.



Arsenic sulphide is acidic enough to dissolve in the rather weakly basic ammonium carbonate, while Antimony sulphide is not. These reactions are properly taken advantage of in the qualitative separation of Bismuth, Arsenic, and Antimony, where the latter two elements form a natural group (II-B) along with Tin.

The points of similarity among this group of five elements may now be recapitulated. The atoms of these elements have similar electronic configurations, each possessing five valency electrons in the outermost orbit, in terms of which their tri- and quinquevalency can be readily explained. The hydrides and oxides of the general formulae XH_3 and X_2O_5 respectively ($\text{X}=\text{N}, \text{P}, \text{As}, \text{Sb}$ or Bi .) are typical compounds of the Fifth Group of the Periodic Table. The above oxides are acidic and the basicity (along with stability) of the hydrides diminishes with a

rise in atomic weight of the element, in accordance with the general trend of the Periodic Table. It is interesting to observe, in this connection, that all these elements, with the exception of Bismuth, form compounds of the type $\text{X}(\text{C}_2\text{H}_5)_4\text{OH}$ ($\text{X}=\text{N}, \text{P}, \text{As},$ or Sb), which are very similar to NH_4OH but more strongly basic, in which respect they are practically indistinguishable from one another. There is a general similarity between the properties of the elements of this family when the first member, nitrogen, is omitted. The resemblances between Phosphorous and Arsenic, between Arsenic and Antimony and, in general, between Arsenic, Antimony and Bismuth are worthy of notice. It will be seen, in short, that the gradual transition from nonmetallic Nitrogen to the metallic Bismuth through the metalloids, Arsenic and Antimony, along with the individual and intrinsic qualities of these elements, accounts for the differences in their properties, while their electronic configuration accounts for the similarities in their properties.

The above discussion is brief, rather elementary and, admittedly, incomplete, no attempt having been made to be all-inclusive. It should, nevertheless, suggest and indicate the general trends existing among the properties of the elements as related to their positions in the Periodic Table. It should further form a basis for, and lead to, a fuller understanding of the main features of the Periodic Table.

TABLE I

PROPERTIES OF THE ELEMENTS

Properties	Nitrogen (N)	Phosphorus (P)	Arsenic (As)	Antimony (Sb)	Bismuth (Bi)
1. Atomic Number.	7	15	33	51	83
2. Electron Configuration	2.5	2.8.5	2.8.18.5	2.8.18.18.5	2.8.18.32.18.5
3. Atomic Weight	14.01	30.98	74.91	121.8	209
4. Density of Solid	1.03	1.83 (White)	5.73 (r)	6.71	9.80
5. Atomic Volume	13.65	16.96	13.08	18.25	21.32
6. Melting Point	-210°C	44.1°C	815°C	631°C	271°C
7. Boiling Point	-196°C	287°C	615°C	1380°C	1450°C
8. Atomicity of Molecule	Two (N ₂)	Four (P ₄)	Four (As ₄)	Four (Sb ₄)	Two (Bi ₂)
9. Allotropy	Does not exhibit	Exhibits	Exhibits	Exhibits	Does not exhibit.
10. Physical Properties	Colourless, odourless, tasteless gas. Non-poisonous, does not support combustion or respiration	White and red forms exist Solid, feeble conductor of electricity. White form poisonous. Red form non-poisonous.	Gray, lustrous solid Fairly good conductor of heat and electricity Poisonous	Silver-white, lustrous, brittle solid Poor conductor of heat and electricity Poisonous	Reddish-white, brittle solid. Poor conductor of electricity.

11. <i>Chemical Properties—</i> Oxygen	Under the action of an electric arc or spark, nitric oxide formed. $N_2 + O_2 \rightarrow 2NO$. NO combines with more oxygen forming Nitrogen peroxide (brown) $2NO + O_2 \rightarrow 2NO_2$	In a restricted supply of oxygen, forms phosphorus trioxide: $2P + 3O_2 \rightarrow P_2O_3$ With more oxygen, phosphorus pentoxide: $P_2O_3 + O_2 \rightarrow P_2O_5$	When heated in air, forms Arsenious oxide: $4As + 3O_2 \rightarrow 2As_2O_3$ Oxidized by O_3 or hypochlorite to pentoxide: $As_2O_3 + 2[O] \rightarrow As_2O_5$	When heated in air forms trioxide. $4Sb + 3O_2 \rightarrow 2Sb_2O_3$	When heated in air • gives the trioxide. $4Bi + 3O_2 \rightarrow 2Bi_2O_3$.
12. Chlorine	No action.	Forms PCl_3 or PCl_5 : (Yellow P alone reacts) $2P + 3Cl_2 \rightarrow 2PCl_3$ $PCl_3 + Cl_2 \rightarrow PCl_5$	Powdered arsenic inflames in chlorine $2As + 3Cl_2 \rightarrow 2AsCl_3$	Heated metal combines with chlorine to give trichloride: $2Sb + 3Cl_2 \rightarrow 2SbCl_3$, when Cl_2 passed thro' boiling $SbCl_3$: $SbCl_3 + Cl_2 \rightarrow SbCl_5$	Chlorine passed over heated metal gives rise to trichloride: $2Bi + 3Cl_2 \rightarrow 2BiCl_3$
13. Nitric Acid (Hot concentrated)	No action.	Oxidized to orthophosphoric acid $4P + 10HNO_3 + H_2O \rightarrow 4H_3PO_4 + 5NO + 5NO_2$	Oxidized to arsenic acid: $4As + 10HNO_3 + H_2O \rightarrow 4H_3AsO_4 + 5NO + 5NO_2$	Oxidized to antimonic acid or hydrated antimony pentoxide $4Sb + 10HNO_3 + H_2O \rightarrow 4H_3SbO_4 + 5NO + 5NO_2$ [H_3SbO_4 is $Sb_2O_5 \cdot xH_2O$]	Bismuth nitrate is formed: $4Bi + 18HNO_3 \rightarrow 4Bi(NO_3)_3 + 9H_2O + 3NO + 3NO_2$.

TABLE II

PROPERTIES OF THE HYDRIDES

Properties	Ammonia (NH ₃)	Phosphine (PH ₃)	Arsine (AsH ₃)	Stibine (SbH ₃)
1. Melting Point	-111°C	-133°C	-111°C	-88°C
2. Boiling Point	-87°C	-59°C	-17°C
3. Temperature of Rapid Decomposition.	1300°C	440°C	230°C	150°C
4. Laboratory Preparation	Ammonium chloride heated with slaked lime. $\text{Ca(OH)}_2 + 2\text{NH}_4\text{Cl} \rightarrow \text{CaCl}_2 + 2\text{NH}_3 + 2\text{H}_2\text{O}$	White phosphorus is boiled with caustic soda $4\text{P} + 3\text{NaOH} + 3\text{H}_2\text{O} \rightarrow 3\text{NaH}_2\text{PO}_2 + \text{PH}_3$	An arsenide is treated with dilute acid: $\text{Zn}_3\text{As}_2 + 3\text{H}_2\text{SO}_4 \rightarrow 3\text{ZnSO}_4 + 2\text{AsH}_3$ or on arsenic compound reduced with nascent hydrogen (from Zn and dil H_2SO_4): $\text{As}_2\text{O}_3 + 12[\text{H}] \rightarrow 2\text{AsH}_3 + 3\text{H}_2\text{O}$ $\text{As}_2\text{O}_5 + 14[\text{H}] \rightarrow 2\text{AsH}_3 + 5\text{H}_2\text{O}$	An antimonide is treated with dilute acid: $\text{Mg}_2\text{Sb}_2 + 6\text{HCl} \rightarrow 2\text{SbH}_3 + 3\text{MgCl}_2$ or an antimony compound is reduced with nascent hydrogen: $\text{Sb}_2\text{O}_3 + 12[\text{H}] \rightarrow 2\text{SbH}_3 + 3\text{H}_2\text{O}$
5. Properties	Colourless gas with a characteristic pungent smell	Colourless, poisonous gas, with an offensive odour of rotten fish	Colourless, poisonous gas, with very unpleasant smell of garlic	Colourless, poisonous gas with an objectionable smell.
6. Solubility in water.	Soluble Gives an alkaline solution $\text{NH}_3 + \text{H}_2\text{O} \rightarrow \text{NH}_4\text{OH}$	Insoluble	Decomposed by moisture into its elements.	Decomposed into its elements by moisture.
7. Action of Heat	Rather stable	Decomposed into elements	Easily decomposed into elements	Very easily decomposed into elements

7. Reaction with acids (Basic Properties)	Readily combines with acids giving ammonium salts $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$ Ammonium salts are fairly stable in aqueous solution	Does not combine with HCl under ordinary conditions, but phosphonium iodide can be obtained. $\text{PH}_3 + \text{HI} \rightarrow \text{PH}_4\text{I}$ Phosonium salts are hydrolysed by water, PH_3 being set free.	Does not combine with Arsonium (AsH_4) salts do not exist.	Does not combine with acids. Stibinium (SbH_4) salts do not exist.
8. Oxygen	Warm NH_3 burns: $4\text{NH}_3 + 3\text{O}_2 \rightarrow 2\text{N}_2 + 6\text{H}_2\text{O}$	Readily inflames in oxygen forming oxides of phosphorus and water. $2\text{PH}_3 + 4\text{O}_2 \rightarrow \text{P}_2\text{O}_5 + 3\text{H}_2\text{O}$	Water and arsenic are formed $4\text{AsH}_3 + 3\text{O}_2 \rightarrow 4\text{As} + 6\text{H}_2\text{O}$	Water and antimony are obtained. $4\text{SbH}_3 + 3\text{O}_2 \rightarrow 4\text{Sb} + 6\text{H}_2\text{O}$
9. Chlorine	Oxidized to Nitrogen: $2\text{NH}_3 + 3\text{Cl}_2 \rightarrow 6\text{HCl} + \text{N}_2$ $6\text{HCl} + 6\text{NH}_3 \rightarrow 6\text{NH}_4\text{Cl}$	Spontaneously ignites in chlorine $\text{PH}_3 + 4\text{Cl}_2 \rightarrow \text{PCl}_5 + 3\text{HCl}$	A similar reaction.	A similar reaction.
10. Copper sulphate solution	Not reduced	Reduced to copper $\text{PH}_3 + 4\text{CuSO}_4 + 4\text{H}_2\text{O} \rightarrow 4\text{Cu} \downarrow + 4\text{H}_2\text{SO}_4 + \text{H}_3\text{PO}_4$	Reduced to copper $\text{AsH}_3 + 4\text{CuSO}_4 + 4\text{H}_2\text{O} \rightarrow 4\text{Cu} \downarrow + 4\text{H}_2\text{SO}_4 + \text{H}_3\text{AsO}_4$	A similar reaction.
11. Mercuric chloride solution	Not reduced	Reduced	Yellow ochreation developing into brown and then black precipitate: $\text{AsH}_3 + 2\text{HgCl}_2 \rightarrow \text{AsH}(\text{HgCl})_2 + 2\text{HCl}$ Yellow $\text{AsH}_3 + 3\text{HgCl}_2 \rightarrow \text{As}(\text{HgCl})_3 + 3\text{HCl}$ Brown $2\text{AsH}_3 + 3\text{HgCl}_2 \rightarrow \text{As}_2\text{Hg}_3 \downarrow + 6\text{HCl}$ Black	A similar reaction.

TABLE II—(contd.)

Properties	Ammonia (NH ₃)	Phosphine (PH ₃)	(Arsine (AsH ₃))	Stibine (SbH ₃)
12. Silver Nitrate solution	Not reduced	Reduced to silver (through the intermediate formation of an yellow compound.) $\text{PH}_3 + 6 \text{ AgNO}_3 \rightarrow \text{Ag}_3\text{P} + 3 \text{ AgNO}_2 + 3 \text{ HNO}_3$ $\text{Ag}_3\text{P} + 3 \text{ AgNO}_2 + 3 \text{ H}_2\text{O} \rightarrow 6 \text{ Ag} \downarrow + 3 \text{ H}_2\text{NO} + \text{H}_3\text{PO}_3$	When AsH ₃ is passed thro' dil AgNO ₃ , silver is precipitated $\text{AsH}_3 + 6 \text{ AgNO}_3 + 3 \text{ H}_2\text{O} \rightarrow \text{H}_3\text{AsO}_3 + 3 \text{ HNO}_3 + 5 \text{ Ag} \downarrow$ Filtrate contains As, which can be precipitated by H ₂ S With conc. AgNO ₃ , no precipitate, but yellow solution: $\text{AsH}_3 + 6 \text{ AgNO}_3 \rightarrow \text{Ag}_3\text{As} + 3 \text{ AgNO}_2 + 3 \text{ HNO}_3$ On dilution, black silver is precipitated. $\text{Ag}_3\text{As} + 3 \text{ AgNO}_2 + 3 \text{ H}_2\text{O} \rightarrow 6 \text{ Ag} \downarrow + 3 \text{ HNO}_3 + \text{H}_3\text{AsO}_3$	$\text{SbH}_3 + 3 \text{ AgNO}_3 \rightarrow \text{Ag}_3\text{Sb} + 3 \text{ HNO}_3$ With excess of AgNO ₃ : $2 \text{ Ag}_3\text{Sb} + 6 \text{ AgNO}_3 + 3 \text{ H}_2\text{O} \rightarrow 12 \text{ Ag} \downarrow + \text{Sb}_2\text{O}_3 \downarrow + 6 \text{ HNO}_3$ (Black.) The filtrate does not contain Sb.
13. Tests	Characteristic smell. Produces dense white fumes with conc HCl. Moist red litmus turned blue. A brown colour or precipitate, with Nessless Reagent.	Pishy odour—Readily inflammable	Passed through a heated tube. A bright mirror at a point away from the point of heating. Mirror dissolves in hypochlorite; leaves a yellow residue on heating with yellow ammonium sulphide.	Passed through a heated tube. Mirrors formed on both sides of the point of heating. Mirror dissolves in tartaric acid; leaves an orange residue on heating with ydowll ammonium sulphide.

Chemistry and the Conquest of Disease

by

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From the chance recovery from illness by the administration of plant juices to an attempt to unravel the mysteries underlying the living process, the body chemistry and the cause of diseases is a remarkably great step forward in the battle against disease. The transition from the nearly wholesale mortality from epidemics to snatching people from the jaws of death using synthetic drugs and chemicals should impress every one. This is accomplished by the conception of medical science and by the phenomenal advances made in this field by the wonderful application of scientific, especially chemical, theories and techniques. The solutions of problems of preventive medicine—i.e., sanitation, disinfection and hygiene—the development of aseptic surgery, sera, vaccines, microanalysis and medical tests, the discovery of anaesthesia, antibiotics, antimetabolites, radioactivity, tracer isotopes, the production of the sulphadiazine drugs, the tranquillizers and pain-relievers have been the major contributions of chemistry to human happiness. The synthetic skill, inventive genius and intuitive capacity of the chemist stand him in good stead in his unrelenting warfare against the devastations of diseases. They help him march steadily onwards attacking the protozoa, the powerful resistant bacterial strains, the rickettsia, the dangerous avitaminoses unflinchingly, despite the ambush laid by the bewildering heart diseases, allergic reactions, the deadly viruses, non-bacterial infections, the dreadful cancer and the perilous hazards of intense radio-activity.

The "Father of Chemotherapy":

Louis Pasteur and Robert Koch, the founders of the science of bacteriology, loomed large also in founding chemotherapy. Their

recognition of the microbial nature of many infections greatly influenced the development of this field of science, which deals with the selective destruction by chemical agents of the parasites within a host. The failure of great many human diseases to respond to serum therapy or vaccination initiated Paul Ehrlich to do the pioneering research that earned him the name of the "Father of Chemotherapy".

The earlier drugs:

Assuming that parasites were attacked only by drugs to which they became firmly fixed, Ehrlich turned his attention to dyes that selectively stained certain organisms. His famous and first experiment in chemotherapy showed the efficacy of methylene-blue in staining malarial parasites. If this did not meet with success over the traditional remedy for malaria, quinine, undoubtedly it stimulated the Germans to introduce two invaluable antimalarials, Plasmoquine and Atebrine, as will be seen later.

Ehrlich continued his research with these dyes to find out a cure for sleeping sickness, one of the trypanosome infections. In 1907, Trypan Red, which he found to be both curative and prophylactic for mice infected with *Trypanosoma equinum*, gave him success. In rapid succession came in for therapeutic use other similar dyes, Trypan Blue and Afridol Violet.

If these dyes did not get any favour, it was because they coloured the tissues intensively. This disadvantage necessitated Ehrlich to search for colourless substances. This fructified into his most successful contribution to chemotherapy—the development of organic arsenicals. One of the earliest such compounds

he found was Atoxyl that effectively cured trypanosome infections in mice and sleeping sickness in human beings.

The narrow limits of treating infections set up by these drugs effected another major contribution of Ehrlich to the growing science of chemotherapy—the introduction of Salvarsan in 1912. Salvarsan was effective not only against trypanosomes but also against spirochaetes. Relapsing fever and syphilis, both of which are of spirochetal origin, were cured successfully by treatment with this chemical. Also, compounds containing antimony or other such toxic elements instead of arsenic were tested. Antimony compounds, structurally related to atoxyl, were of reasonable efficacy in the treatment of kala-azar, a disease which exacts a heavy toll in India, China, parts of Africa and South America.

To avoid the undesirable high poisonous effects of these toxic metals, newer therapeutic researches concentrated attention on compounds containing only the elements found normally in the body: carbon, hydrogen, nitrogen, and in some cases, sulphur and chlorine. Bayer 205, introduced by Germans in 1920 as a valuable remedy for sleeping sickness in the early stages of the disease, is worth mentioning as the first metal-free, colourless drug that achieved success. The revolutionary changes brought about by the coming of a family of drugs with remarkable potency—the sulphas—have made these earlier drugs purely of historical interest.

The sulphas :

Whereas protozoal or spirochetal infections mostly succumbed to chemotherapy, the chemotherapeutic treatment of bacterial infections was least promising. This was believed to be due to the very close similarity between the metabolic processes of the host and the bacteria. Domagk established in 1935, however, the dramatic effects of Prontosil, a dye, against most hemolytic streptococcal infections. Erysipelas, puerperal fever and streptococcal empyema, virulent

streptococcal infections, were no more dreadful. Soon after, French workers have caused the revolutionary introduction about 20 years ago, of the sulpha drugs into the medical world. They showed that the remarkable efficacy of Prontosil as a bacteriostatic agent was, in fact, due to a colourless substance, sulphanilamide, into which Prontosil was converted by metabolic processes. As a result, Sulphanilamide became the prototype of a series of structurally related chemical compounds, known as the sulphanilamide or sulphonamide drugs, or more simply the sulphas, that soon underwent industrial production. Extensive research in this field pronounced relief and life to the human and animal population. Although replaced, in many cases, by the newer and more efficient antibiotics, the sulphas are yet dear to us for their wonderful effectiveness.

Slightly modified forms of sulphanilamide give valuable drugs that merit attention. Sulphapyridine, M. & B. 693, is very effective against pneumonia.

The family of sulphones rendered successful treatment of leprosy for the first time. When the fact that this extremely abominable scourge disfigures a human patient in every 350 in this world is remembered, it is needless to say the part played by the sulphones in relieving humanity, partly at least, of a great scourge is exceedingly important.

The antibiotic age :

The established bacteriological fact that diseases due to one bacterial species can be fought by inhibiting their growth by the presence of another microorganism had to wait for more than sixty years for an application, from 1877 to 1941. The significance of Dr. Alexander Fleming's romantic discovery of Penicillin in 1929 was little understood before 1941, when Florey demonstrated its excellent antibacterial properties and unbelievably low toxicity. Then, at last, a treasure was unearthed in Penicillin.

Extremely effective in quite small doses, penicillin is of considerable value in the treatment of a variety of bacterial infections, including the spirochaetes of syphilis and yaws. Its activity is not seriously affected by tissue proteins, breakdown products, or pus, and it is relatively unaffected by the number of bacteria present. It has widened the field of bacterial chemotherapy to an extent which would have been unbelievable a few years ago. It must be pointed out, however, that virus infections like influenza and poliomyelitis and some bacterial infections like typhoid are more than a match to penicillin or any other antibiotic hitherto used.

The supremacy of penicillin over the sulphadiazones in several respects initiated the search for other antibiotics. This search culminated in the production of six other antibiotics for clinical use. In Streptomycin, one of these six, the world saw the first successful chemotherapeutic agent against human tuberculosis. Fairly toxic and even somewhat dangerous, streptomycin produces remarkable improvement in cases of acute tuberculosis. The greatest disadvantage with this antibiotic is that rapid development of bacterial resistant strains are liable to follow its use.

Within the last ten years three useful and unique antibiotics were added. Chloramphenicol, or chlormycetin, was the first chemically useful synthetic antibiotic to be synthesized industrially. Aureomycin and Terramycin are the other two. All these three are therapeutically active over a wide range of microorganisms. They are effective against many different bacterial infections, including streptococcal and staphylococcal infections. Their outstanding importance and interest is due to their being the first useful agents against the rickettsia that cause typhus and the Rocky Mountain fever, and against some viruses that once were very difficult to treat with. Common illnesses, due to viruses, like measles and mumps, have been treated with reasonable success using these antibiotics. Penicillin, Streptomycin,

Aureomycin and all other "mycins" are heard almost everywhere today. These antibiotics, these inhibitors of bacterial growth, are now growing in reputation. This is the antibiotic age.

Atomic energy in medicine:

This is the atomic age, too. The atom and radioactivity have opened new lines of attack. Radioactivity is used in the treatment of cancer. Tracer isotopes are employed to study the course of body's chemical reactions. Also, since 1952, during the past seven years, radioactive isotopes, in the form of solutions, have become familiar weapons against many heart diseases. These isotopes so affect the activities of certain glands that the basal metabolic rate of the body is lowered to suit the heart's output capacity and so much pain is relieved. This is but one of the many possible applications of atomic energy in medicine.

Malaria:

The almost complete mastery over the major tropical disease, malaria, is a triumph of chemotherapeutics. Responsible for the direct or indirect cause of over one-half of the entire mortality of human race, the malarial parasite is transmitted by some species of mosquito, it is familiar. As already noted, two new antimalarial agents, Plasmoquine and Atebrine, now called Pamaquine and Mepacrine respectively, were introduced between 1926 and 1930. That these drugs are complementary in their physiological actions is noteworthy. While Pamaquine is effective against the form of parasites prevalent in mosquitoes, Mepacrine acts on the parasites into which this species is transformed and which multiply in the blood, producing clinical symptoms of malaria. Complementary effects like these are most desirable and important in combating such diseases as malaria.

The best antimalarial yet found, Paludrine, is the fruit of war-time research carried out by Rose and Curd on the development of

antimalarials in the Imperial Chemical Laboratories. Its relative non-toxicity, simpler chemical structure and more or less true prophylactic action claim predominance of Paludrine over other antimalarial agents. No doubt, Paludrine is a great contribution of chemistry to the conquest of this tropical disease.

Synthetic chemistry :

The history of modern chemical drugs begins indeed in that epoch-making year of 1828, with the famous laboratory synthesis of urea by Wohler. This threw into disrepute the superstitious vitalistic theory, opening up new vistas. Synthetic chemistry, a by-product of this achievement, grew so astonishingly and rapidly that the compressed tablet gained ascendancy over plant juices. The significant growth of organic chemistry in respect of elucidation of molecular structure led the chemist to devise purely artificial methods for the preparation of natural drugs, and, what is more important, suggested the artificial preparation of similar substances not found in nature. It induced him sometimes to improve, apparently, upon Nature, as, for example, in the case of the newer analgesics which are replacing morphia as drugs used for allergic conditions such as nettle-rash, and in the case of Paludrine that has largely replaced Quinine. The ability to synthesize various drugs with known physiological effects is truly a crowning achievement of the organic chemist.

Disease control—Insecticides :

Malaria, kala-azar, the virus diseases like yellow-fever, the rickettsial disease typhus, and many virus diseases of plants—these are only a few of the insect-borne diseases that ravage human race. To control these infections it is not enough to destroy the parasites that directly cause diseases. For a complete success, the insects that harbour these parasites and serve as hosts must also be killed. Attacking all these insects is a formidable problem. Also an indiscriminate extermina-

tion will result in the destruction of insects that are beneficial, and even necessary, and hence in a substantial loss. Realizing this fact the chemist has developed a vast array of insecticides to suit almost any specific purpose, within a comparatively short period of fifteen years.

The abundant supply of chlorine as a by-product a few decades ago was utilized by the chemist for human welfare. The constructive habit of studying the properties, when chlorinated, of almost all substances led to one of the marvels of organic chemistry, viz. the production of D.D.T. and the discovery of its outstanding insecticidal properties. The discovery of D.D.T. greatly influenced the work on insecticides. In a comparatively short period, various chemically unrelated chlorinated hydrocarbons—benzenehexachloride (B.H.C.), Chlordan and Toxaphene—were found to be potent insecticides. Parathion and Hexaethylphosphate are only two of the more important compounds that drew recent attention as valuable insecticides.

D.D.T. and Gammexane are very well known among insecticides. Their use in exterminating insects that spread diseases may be illustrated by two examples. First, the problem of malaria is practically solved by spraying D.D.T. so that the female mosquitoes do not live longer than eight days with the equivalent effect that the mosquito population is reduced to one-third. Second, the ill-effects of the Chagas disease, a trypanosome disease spread by bugs, are minimised by the extermination of those bugs using Gammexane. It is regretful, however, that the use of insecticides presents also problems. Insects become resistant to the toxic effect of D.D.T. and harmful traces of this poisonous substance are found in natural food crops and food products treated with D.D.T. That the chemist's exemplary unweariness in replacing chemicals that lose their efficacy by chemicals of improved efficacy and less harmfulness is admirable is proved by the variety of insecticides now available.

The control of such diseases as tuberculosis, leprosy and malaria exact intensive and continued application of difficult measures of sanitation and hygiene, in maintaining which the chemist's responsibility is very great. His water sterilization methods, disinfectants, germicides, bleaching powder, detergents, etc., are very valuable in the prevention of diseases.

Vitamins, hormones and enzymes :

The body chemistry is too delicate and intricate to yield to a complete study of the chemical changes that occur in the living body. As yet, a lot more is now known about the chemical processes than was known before the discovery of the vitamins, hormones, enzymes and amino acids. Living beings contract diseases not only because of harmful micro-organisms, but because of some deficiency in the diet or some improper functioning of the glands of the body that upsets the proper balance of the body chemistry. When chemistry searches for refined methods of remedying these disorders, we encounter those branches of absorbing interest allied with vitamins, hormones, and enzymes, and many other unknown chemicals of life.

The discovery of vitamins and the dramatic cure of such diseases as pellagra, rickets, xerophthalmia and others, is well known today. The chemist's unceasing efforts in this field to isolate vitamins in an essentially pure state, unravel their chemical structures and synthesize them on an industrial scale for the prevention and cure of these scourges have been tremendous. They have conferred unthinkable benefits on all living beings, from plants to humans.

Scientific knowledge gathered about the ductless glands of the body and their secretions has prolonged life. The successful synthesis of the hormones has lengthened the list of diseases that yielded to chemotherapy. The study on sex hormones and their laboratory synthesis were of singular service in the medical treatment of cancer. The discovery of insulin by Dr. Banting was indeed

a salvation to the diabetes stricken. Adrenocorticotrophic hormone (ACTH), adrenalin, cortisone, thyroxin, etc., have saved countless people from living death.

Enzyme chemistry is a separate field of chemistry. Chemical investigations have added largely to our knowledge of the body chemistry; coenzymes, enzyme activators, inhibitors, and so on. This knowledge has led the chemists to the discovery of the sulphas and various antimetabolites.

Mentioning about yeast cannot be helped when dealing with enzymes. Yeast is so famous for its high contents of a large number of enzymes that the very word "enzyme" comes from Greek for "in yeast". It is an indispensable source of various vitamins, provitamins and probably some hormones. At least its extensive application in the treatment of cancer and diabetes can be given here. Injection of yeast extract in hopeless cases of cancer showed positive shrinkage of tumours and, in experimental rats, low cancer incidence. The profoundly beneficial influence of baker's yeast on the sugar metabolism of diabetes patients established its potent therapeutic activity. Research is stepped up, with good reasons, to make applications of yeast therapy to cure various diseases.

Biological chemistry :

The study of biology by the application of chemistry has unearthed mysteries about the body chemistry. Metabolic processes have been understood more comprehensively. The nutritional significance of the essential amino acids has been recognized. Very many biological problems were solved, in consequence, and numerous diseases were cured. In short, the intimate concerns of biology were dealt with effectively by applications of chemistry. The problems and accomplishments of biology are the problems and accomplishments of chemistry. This application of chemistry in biology—the field of biochemistry—no one can deny, has much to do with

an understanding of the causes of diseases, their prevention and cure.

The enigma of cancer:

Of medicine's most exciting stories the enigma of cancer is one. The greatest mobilization of resources is being undertaken to solve this riddle. The knowledge so far gained reveals that cancer is particularly a disease of misbehaving cells, which multiply indefinitely forming the tumour masses. What makes normal cells behave properly and what makes the peaceful cells uncontrollable, investigations have not yet disclosed. Whereas the destruction of localized superficial cancerous growths at the initial stages of development is accomplished by X rays and radium, cases of well-developed cancer are more or less hopeless.

As the cause of this disease is not known, the precise biochemical differences in the metabolism of cancerous and normal cells are exploited for the treatment of cancer. Drugs that specifically interfere with the metabolism of cancerous cells and consequently kill such cells are employed. These are called antimetabolic drugs. The sulpha drugs are, it may be noted, also classified as antimetabolites. No doubt, the term "antimetabolite" will become one day as familiar as the term "antibiotic".

There are other promising leads for the treatment of cancer. Modern evidence confirms the theory that a cell becomes cancerous when something happens to either the structure of its nucleic acid or the metabolism of that acid. One of these leads is to synthesize drugs that will specifically interfere with the formation of nucleic acid or its metabolism in cancer cells, to the effect that the cancerous tumours may die. Another lead is to train certain viruses to attack the cancerous cells and solely devour them without injury to normal cells.

Whereas X rays and radium have thus far been effective only in cases of superficial cancers, hormone therapy, introduced by

Dr. Charles Huggins, constitutes another major lead. Cancers of the breast and the prostate can be successfully treated with sex hormones. When castration cut off the supply of male hormones, cancer of the prostate in males was checked more or less effectively. Spaying in females had a similar effect on, and caused regression of, breast cancers. Administering hormones of the opposite sex has practically the same effect as castration in males or spaying in females. The harmful infiltration of cancer to the bones is thus prevented, and much pain is relieved. This use of sex hormones to check some forms of cancer, temporarily at least is, in medical progress, a milestone. The first chemical and hence medical treatment of cancer, we owe to Dr. Huggins.

The chemist will help doctors hem in the elusive cancer by delicate medical diagnosis and skilful treatment. One can as well predict, for the first time, a rosy honeymoon for those afflicted with cancer.

The viruses and genes:

The all-peculiar and extraordinary viruses that cause large suffering and loss by spreading various human, animal and plant diseases have caused starting a tremendous research on them, their properties, duplication and synthesis. Seemingly dead, but flaming into life inside living cells, the virus is rightly called the "contagious living fluid". The viruses were found to be composed essentially of large nucleoproteins and to possess many properties strikingly similar to those of genes. With the development of chemicals that are generally active against virus diseases the last stronghold of infectious diseases will, for ever, have been entered. It is not a far cry from the newer knowledge of intracellular reactions of the virus proteins—these intracellular parasites—to the discovery and understanding of the basic and fundamental reactions involved in the life process.

Pain relievers:

Finally, the chemist cannot only cure diseases. That he can also relieve pain and

make living comfortable is established by the various chemicals that are now in extensive use—autonomic drugs, cardiac drugs, analgesics, hypnotics, tranquillizers, pain relievers, cocaine, novocaine, chlorate, lozenges, piperazate wafers, tincture of iodine, and Mandaleene solution and so on.

The future :

From an inspection, however superficial, of the magnificent progress made in the recent years and the splendid prospect before us, we cannot but exclaim, like Sir Humphry Davy, who said : " I hardly know which we ought most to rejoice at—the progress that has been made in natural knowledge or the progress that has been made in natural knowledge or the progress that is to come."

Despite all this progress, we are incapable of treating the major death-dealing diseases of today—heart disease, high blood pressure, cancer. We are incapable of controlling arthritis, rheumatism, influenza, asthma, and the common cold. We are ignorant of the basic physiological reasons for growing old. Though the most difficult problems remain to be solved, we may still hope very much to be done in the future by the chemist for the sacred cause of human happiness ; but how, we cannot predict.

An appeal :

In passing, it must be indicated that this short essay does scant justice to the chemist's

part in minimising death rates. Limited space rules out explaining many technical terms, nor does it allow dealing with any point in considerable detail. Attention is focussed on only a few highlights, regretting to skip over many important and notable points. Just a bare outline is given of the chemist's triumphant achievements in promoting human happiness and indeed of the glorious prospect of what splendid progress he will make towards our leading a healthier and more perfectly care-free life.

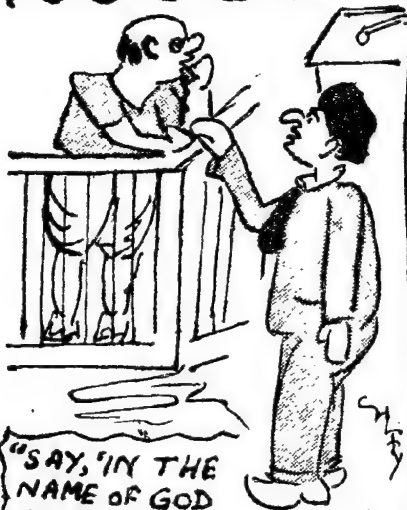
An appeal is made to the general public, hereby, not to regard the chemist as a mere dispensing pharmacist or a druggist, but as a practitioner of chemistry with a more powerful, prolific, intellectual genius and with a nobler aim, and to pay him—in recognition of his unsurpassed services to people of all walks of life, and in commemoration of the pioneering chemist who opened up this new, but very promising, field of chemotherapy—respect which is no less his due than his desert. Quite all the same, no attempt is made to claim that all the advances made and innovations introduced into the field of chemotherapy are due alone to the chemist. However, the chemist's contribution stands higher than that of any other. The aim of this essay is to see all people coordinating their efforts with the chemist in harmonising their own lives and criticising him for constructive purposes and to secure his valuable services for their own well-being.

OUR CARTOON CORNER

CHITTY



"THIS VILLAGE SEEMS TO BE A VERY HEALTHY ONE. WHAT IS THE DEATH RATE SIR?-"
 "ONLY ONE PER HEAD"



"SAY, IN THE NAME OF GOD I SAY THE TRUTH"
 "DO YOU SIR?-"



"DO YOU KNOW ANYTHING ABOUT THE FIVE YEAR PLAN?-"
 "YES, SIR!-WE MUST DO SOMETHING OR OTHER WITHIN THAT PERIOD"



"DOCTOR, HEREWITH I CONTRIBUTE THESE BUGS AND MOSQUITOES, A GOOD SOURCE OF BLOOD-FULL OF BLOOD."

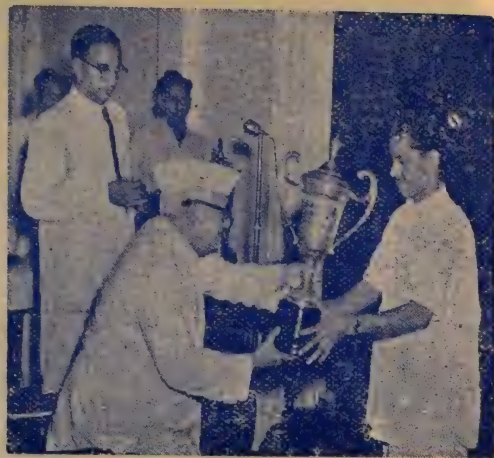


"M. G. R." our patron

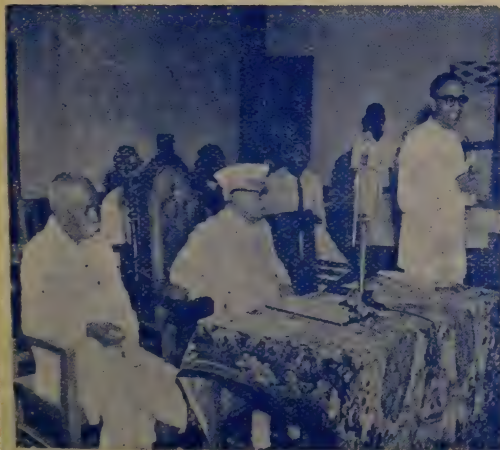
COLLEGE DAY CELEBRATIONS



Miss Lalitha receiving prize from the Governor



Governor giving away the Sir Theagaraya Cup



Principal Shanmugam speaking on College Day



Distinguished guests on College Day

EXCURSION TO KRUSADAI ISLANDS



At Rameswaram—Students watching the divers making collections.



The Professor of Zoology examining an echinoid.



Leaving the Temple at Rameswaram.



Leaving for Krusadai Island.



Mr. Reddy explaining the collections at Pulivasa Island.



—By K. Y. Nasasimhan, III B.Sc., Branch I.



—By E. Loganathan, P.U.C. E.

HYDRA - BODY WALL

by

PROF. G. MADAN MOHAN RAO, M.A.,
Head of the Dept. of Natural Science.

Hydra is a macroscopic organism found in fresh water ponds, usually attached to stones and weeds. The body is cylindrical, the lower end of which is closed and flattened. This is called basal disc, used for attachment. The other end of the body bears a number of hollow tentacles which arise around the base of a cone called hypostome, at the apex of which is situated the mouth. The body of Hydra is highly contractile.

The body wall is constructed on the typical coelenterate plan. It consists of an outer layer of cells called ectoderm and an inner layer of cells, the endoderm. The mesogloea is a non-cellular jelly like layer separating the ectoderm and endoderm. Hydra is called diploblastic animal. Despite the simple anatomy the differentiation has taken place in the cells of ectoderm and endoderm. The ectoderm consists of seven types of cells:

(a) *Musculo-epithelial cells*: The bulk of ectoderm is formed of this type of cells. The cells are conical with the broader bases turned outwards and the narrow ends resting on mesogloea. The narrow ends are drawn out to form contractile processes which lie along the mesogloea parallel to the long axis of the body. These processes are called *muscle tails* as they resemble the muscles of the higher animals.

(b) *Interstitial cells*: These are placed in the interstices between the musculo-epithelial cells. The cells are small, rounded and not specialized in any way. These are known as reserve cells having the power of giving rise to other kinds of ectodermal cells. Their main function is to produce the reproductive cells and to replace the cnidoblasts which are being regularly used up.

(c) *Cnidoblasts or Nematoblasts*: These are the cells of offence and defence. They are specialized cells arranged in groups or batteries embedded in the superficial layers of ectoderm. Each cnidoblast consists of a sac or capsule called the nematocyst. Outside the capsule is the nucleus. The nematocyst consists of a fluid-filled bladder in which lies a hollow coiled thread. Lying on the outer surface of the nematoblast is a small hair like protoplasmic projection called the *cnidocil* or trigger hair. The nematocyst thread bears at its base a pair of barbs, which inflict wound on the body of the enemy. When the cnidoblast receives a stimulus by the contact of a passing animal with the cnidocil, the coiled nematocyst thread is shot out. The thread penetrates the tissues of the body and injects into them a poisonous fluid which has a powerful paralyzing effect even on large animals like waterfleas. The exact cause for the sudden eversion of the thread is not known. It is probably a complicated process. It is likely that an adequate stimulus causes a change in the inner surface of the thread so that this surface becomes longer and thus causes the thread to be turned in an explosive fashion inside out. The probable factor contributing to the eversion is increase in the pressure of the fluid in the nematocyst.

(d) *Nerve cells*: The nervous system is in the form of a network submerged in mesogloea. The nerve cells are ectodermal in origin. Each nerve cell has a cell body containing a nucleus, and numerous branching processes called nerve fibres. The finer branches of the fibres intermesh with those of neighbouring cells and form a network. The nerve fibres are supplied to musculo-epithelial cells and the endodermal cells. Some of the

nerve cells are modified into receptor cells, sensory the function.

(e) *Sensory cells*: These are also called receptor cells. They are found plentiful in the ectoderm as small columnar cells. Each cell at its free surface has a minute conical projection, while the lower end is prolonged into a nerve fibre.

(f) *Gland cells*: These are the modified ectodermal cells of the basal disc region which produce a sticky secretion for adhesion to the substratum.

(g) *Reproductive cells*: The reproductive cells develop from the interstitial cells by repeated division in particular regions. The testis develops near the oral end while the ovary develops near the basal disc region. Though Hydra is hermaphrodite at, one time it will be either male or female and not both.

Endoderm: The endoderm consists of a single layer of large glandular, columnar cells resting on the mesogloea. Their free surfaces are placed in the gastrovascular cavity or coelenteron. Their bases are prolonged into muscle tails which run at right angles at the main body axis. The endodermal cells produce pseudopodia and bear hairlike flagella at their inner ends. The pseudopodia engulf

the food particles in the food vacuoles. The flagella maintain a circulation of food particles in the enteron by their movements. The endodermal cells placed in the hypostome region are small, non-flagellated and non-vacuolated with no pseudopodia. They produce digestive juices and so are secretory in function.

In *Hydra viridis* the endodermal cells contain the green algae, *Zoochlorellae*. These are found in such large numbers so that the whole animal is green in colour. The green algae and the Hydra live together in complete harmony to their mutual benefit. This association is spoken of as *symbiosis*. The symbiotic algae like all other green plants build up carbohydrates by photosynthesis from carbon dioxide and water. The proteins are synthesized by a combination of elements of carbohydrates with nitrogen. During photosynthesis oxygen is given off. This is used for respiratory purposes by the animal symbiont, the resultant carbon dioxide being available for the photosynthetic process of algae. It has also been stated that the algae absorb and utilize the phosphates excreted by the Hydra. The algae get a safe shelter. Thus a significant biological association is seen between the *Zoochlorellae* and Hydra for mutual benefit.

THE GOLGI SUBSTANCE

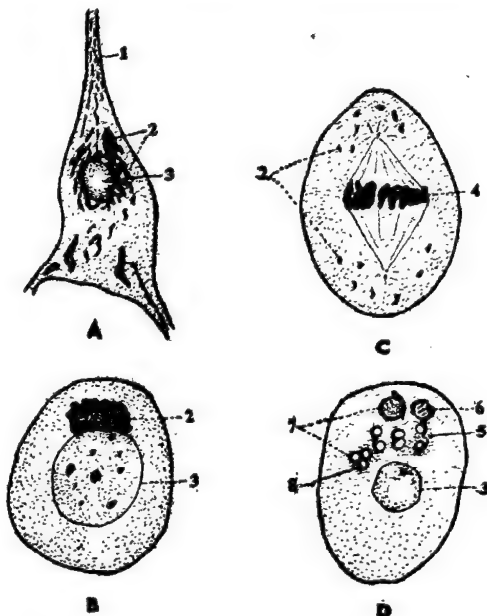
by

PROF. G. MADAN MOHAN RAO, M.A.,
Head of the Department of Natural Science.

The Golgi substance was first observed by Platner in 1885 and later in 1891 by Hermann. However, the Golgi substance was first described in 1898 by Golgi in the nerve cells of Barn owl and of the cat after treating them with silver nitrate. It was described as a network of fibres and was called *internal reticular apparatus of Golgi*. Later it acquired the name Golgi apparatus. As the word 'apparatus' suggests a definite relationship with the physiological processes of the cell, the cytologists prefer to call this structure the *Golgi substance* or *Golgi material* or *Golgi complex* as referring to a material with special staining properties. It is now recognized that the Golgi substance is of wide spread occurrence. It has been demonstrated in almost every type of cell. It is preserved by Osmium tetroxide and silver nitrate techniques. It has been frequently found to occur lying between the nucleus and plasma membrane. As the Golgi substance is provided with powers of growth and multiplication, it forms a living component of the cell.

The shape of Golgi substance is variable. It has been frequently described as a reticulum or net work of fibrils. In many cases, the Golgi material appears fragmented into coarse granules which are dispersed in cytoplasm. This particularly happens in pathological conditions. During mitotic division, fragmentation into fine granules occurs which leads to equal redistribution of Golgi material between the daughter cells (Fig. C). It has been claimed that the Golgi material in the eggs of certain animals is in the form of vesicular bodies. These are made up of osmiophilic material surrounded by a clear area. Pollister states that the Golgi material of larval and adult amphibian is lamellar in

structure. Simpson examined the vertebrate tissues by freezing method and found that the Golgi material is in the form of a coiled canal. It was stated that the contents of the coiled canal were not stained by osmium tetroxide.



A: A cell from cerebral cortex of sheep.

B: Primary spermatocyte of pig showing the Golgi material in localized condition.

C: Primary spermatocyte of pig to show the distribution of Golgi bodies during cell division.

D: Diagram showing the structure of Golgi element as suggested by Baker.

1. Axon.
2. Golgi material.
3. Nucleus.
4. Chromosomes.
5. Diffuse lipid containing substance.
6. Product of Golgi elements.
7. Dense lipid containing substance.
8. Vacuole.

The size of the Golgi material is also variable. In nerve cells it is very large while in muscle cells it is very small. The quantity and size of the Golgi substance is connected with the functional stage of the cell. In active cells, it is well developed. When the cell grows old, it diminishes progressively in size and ultimately disappears. The position of Golgi material is more or less fixed. It lies between the nucleus and periphery.

It has been recently demonstrated that the Golgi material consists of two regions, the inner argentophobic and osmiophobic region called '*Golgi internum*' and the outer argentophilic and osmiophilic part known as '*Golgi externum*.' The Golgi substance is made up of proteins and lipids. The dissociation of proteins and lipids can be effected by the use of proteolytic enzyme which digests proteins and leave free the lipid part. With this method the Golgi material was found to stain with Nile blue sulphate which is a stain for fats and lipids. This property determines that Golgi material is of a lipo-protein constitution. According to some, the protein part is mainly concentrated in the internal zone of Golgi substance. It has been claimed by some workers that the vacuoles and plastids of plant cells are homologous to the Golgi material of animal cells. However, this is not accepted at the present day. Some cytologists believe that the osmiophilic platelets of plants are homologous to the Golgi substance. It is curious to know that these platelets are thrown to the centripetal pole like the Golgi material on centrifugation while the plastids are arranged towards the centrifugal half.

In the egg of Guinea-pig, on ultra centrifugation, the fat and Golgi substance are thrown to the centripetal half. In the oocytes of pigeon, the fat is thrown to the centripetal half and the Golgi material forms a layer between the fat and mitochondria. Some workers denied the existence of Golgi substance and they consider the structures to be artifacts of the osmic and silver preparations or the fat blackened by osmium. As the

presence of this material has been demonstrated in every vertebrate tissue and in the cells of many invertebrates, there is little doubt that the Golgi substance constitutes a definite cell component. Golgi elements have been seen in recent times with the help of electron microscope.

Parat and Painleve in 1924, have put forward the vacuome theory to explain the structure of Golgi material. According to this the Golgi material is an artifact resulted by the precipitation of silver or osmium within the vacuoles. In 1928, Parat stated that the vacuoles were surrounded by mitochondria. Baker, in 1944, gave an elaborate account of the structure and arrangement of Golgi substance. This agrees in several respects with the views of Parat and his associates. Baker has stated that the Golgi substance is not preserved perfectly with all fixatives used hitherto. Its real structure is preserved when fixed with formal in Calcium carbonate solution and later stained with Sudan black. Baker examined the Golgi material in primary spermatocytes of *Helix* and in the absorptive cells of intestinal epithelium of *Triturus*. He calls the localized Golgi substance as the *Golgi element*. According to him the fully developed Golgi substance is in the form of of vacuoles with fluid content and staining with neutral red. In close contact with these vacuoles is the dense lipoid substance and a diffuse lipoid containing substance which fills up the region occupied by the Golgi element. Baker believes that the vacuoles are destroyed by fixatives and the lipoid containing substance is left as a net work.

It has been demonstrated that mitochondria is connected intimately with Golgi material. Vitamin-C appears to be localized in the region of Golgi substance in the tissues of chick embryo. If pieces of intestine of starved *Ascaris* are incubated in 0.1% solution of Vitamin-C, the Vitamin-C is absorbed by the cells and concentrated in the '*internum*' of Golgi material. These experiments go to prove that Vitamin-C is not only

associated but also concentrated in the Golgi substance in which the synthesis of various substances is proceeding.

Though enormous literature has been published since the discovery of this organoid, the problem of functional significance remains to be solved. The few facts known at present are based on indirect observations and have been more or less hypothetical deductions. From a long time, the Golgi material has been described to take part in the secretory processes of the cell. In the fixed and stained preparations of pancreas, secretion granules are visible in association with Golgi material. The Golgi substance in these cells appears as a net-work or a mass of tangled fibres. When the cell begins secretory activity, the Golgi substance seems to show progressive hypertrophy. The Golgi mass becomes less compact and diffuses into the surrounding cytoplasm. Between the filaments can be seen the secretion granules. As the secretion granules first appear in association with Golgi substance, it cannot be denied that Golgi substance plays some part in the process of cell secretion. Some cytologists believe that mitochondria are associated with the formation of cell products. In this connection the work of Duthie needs special mention. Duthie cut opened the abdomen of an anaesthetized mouse and had withdrawn a part of the pancreas. He placed it in saline solution on a glass slide and examined under the high power of the microscope. By the examination of these living cells, Duthie could study the manner in which the secretion granules are formed. In the beginning small granules which take the neutral red stain appear in association with the mitochondria

in the basal part of the cell. The granules were found to remain in contact with mitochondria for about fifteen minutes. Later, by irregular movements, they reached the Golgi zone and increased in size. This may take from 15 minutes to 3 hours. Afterwards they move towards the lumen when they decrease in size and are not stained with neutral red. Now they become mature secretion granules. Kirkman and Severinghans consider the Golgi substance a condensation membrane. It is associated with the concentration of materials secreted elsewhere in the cytoplasm. Many workers are of opinion that the Golgi material is concerned with the synthesis of several cell products. Subramanian states that the Golgi material is concerned with the secretion of intracellular enzymes. The secretory products like yolk, fat, mucous etc., are the secondary products resulting from the enzymatic action. Subramanian believes that the Golgi substance takes part in the elaboration of different materials at different times in the history of the same cell.

Although the relationship between secretion and Golgi material cannot be denied, the explanation of this relationship is still hypothetical. If this relationship is to be accepted, the interpretation of the functional significance of the Golgi material in nerve cell where it is well developed becomes more difficult. Some workers believe that Golgi material may intervene in the secretion of fats, the elaboration of Nissl's body and the metabolism of carbohydrates. In conclusion, it is safe to state that there is no satisfactory theory to explain the function of Golgi material in a general form for all cells.

PLANT EMBRYOLOGY

by

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The Greek philosopher Aristotle, who often had something to say on the different sciences did not seem to have observed the presence of sex in plants.

Herodotus in the 5th century B. C. travelling in the East found that the Arales and Assyrians, conducted a special ceremony during a certain time of the year, in which a man climbed up a male tree, brought down the inflorescence and handed it over to the high priest, who touched the female inflorescence with it, in order to ensure a good supply of dates.

About the 1st century A.D. Pliny in his encyclopedia of Natural History mentioned the male form with its erect leaves as having somewhat of a military bearing, while the females with their softer foliage and feminine ways bent toward it, to save themselves as it were from the curse of virginity or widowhood.

During the 15th & 16th centuries many scientists denied the presence of sex in plants and regarded even the mention of it as inappropriate and obscene.

With the invention of microscope a new impetus was given to this problem.

In the end of 17th century Camerarius R. J. observed that a female mulberry tree, growing without any male tree nearby produced fruits containing abortive seeds. Inspired by this discovery he kept some female plants of *Mercurialis annua* completely isolated from the male plants and found fruits with abortive seeds. On removal of the anthers from the flowers long before they were mature he got empty fruits of Castor and Maize. Thus the influence of male plants (pollen) towards the formation of seeds was realized.

19th century contributed enormously towards this science. An Italian mathe-

matician and astronomer Amici observed the growth of the pollen tube through the style and later its reaching the embryo sac.

Schleiden, a contemporary of Amici also observed the entry of pollen tube into the ovule and with a spark of imagination said that the tip of the pollen tube after a series of divisions developed into the embryo. This view though erroneous was supported by some who perhaps could not face his sharp tongue and denunciation with which he attacked his opponents.

But Amici, who boldly opposed Schleiden's views continued to investigate and at an august session of the Italian Naturalists proved that the embryo was derived from a part of the ovule which was fertilized by a fluid from the pollen tube and not directly from the tip of the tube. He had numerous supporters and one of them was Wilhelm Hofmeister who produced conclusive evidence with numerous figures, clearly showing that the embryo was derived from a cell of the embryo sac and not from the pollen tube.

Schleiden with one of his associates however held to his own view and finally when the evidence against him became overwhelming he gave up all botanical work and settled down in Dresden as a private teacher of history and philosophy.

Immediately afterwards it was observed in some Algae that eggs must be fused with spermatozooids to get embryos and then was issued the general statement that the essential feature of fertilization is the union of two nuclei, one furnished by the male parent and the other by the female.

Hofmeister observed the process of formation of tetrad of microspores or pollen grains from the microspore mother cells.

Strasburger observed the presence of two nuclei inside the pollen grains in several families.

Hofmeister was the first to make a detailed study of the development of the embryo sac. Major contribution towards this study was made by Warming, Vesque, Strasburger, Fischer, Ward, Jonsson, Trent and Mellink and Guignard.

The course of development of the embryo was first made by Hanstein (1870) and was subsequently followed by enormous literature from other workers.

The phenomenon of Polyembryony i.e. the presence of more than one embryo inside the seed was well understood by about this time.

Then ensued the most important discovery of the actual process of Syngamy i.e., the fusion of the male and female gametes.

It was Nawaschin (1898) who showed that in Angiosperms, of the two male gametes discharged by the pollen tube, one fuses with the egg and the other with the secondary nucleus. This process was termed double fertilization.

Embryology received a new and greater momentum with the beginning of the 20th century. Coulter and Chamberlain (1903) summarised the then available literature in their "Morphology of Angiosperms."

The late Karl Schnarf of Vienna made a very valuable contribution through his "*Embryologie der Angiospermen*" (1929) and "*Vergleichende Embryologie der Angiospermen*" (1931).

Presently investigations are being carried out in Germany, France, Sweden, largely and to a lesser extent in Italy, Switzerland, Germany, India, Japan and Australia.

During recent times there has been a new approach to the study of embryology. There are mainly three principal groups. First is the descriptive embryology which deals with the various developmental processes from the initiation of the sex organs to the development

of the mature embryo. The second is the phylogenetic embryology which uses the data obtained above to determine the inter-relationships of the different orders and families for the purpose of improving the present classification. The third is the experimental embryology which is concerned with an imitation and a modification of the course of nature, with a view to understanding the physics and chemistry of the various processes underlying the development and differentiation of the embryo, so as to bring them under human control to the maximum extent possible.

Let us deal in length with the aspect of experimental embryology.

These days the attempts are towards crossing different varieties, species and genera with a view to producing newer and more useful plants.

The storage of pollen then is one of the essential factors. Plants belonging to countries far apart may be crossed by carrying stored pollen in aeroplanes. The potency or viability or the capacity of the pollen grain to take part in fertilization differs in plants. For example, in Sorghum the pollen grains are viable for only 5 hours and in Gossypium for about a day. By storing them under proper conditions the viability can be prolonged to a considerable and sometimes greater extent. Pollen grains of *Coffea*, *Saccharum spontaneum* and *Zea mays* are some which have been successfully stored increasing their period of viability. Temperature and relative humidity are found to be major factors in the storage. Strong light is harmful and complete darkness is found to favour viability.

Wherever fertilization could not be achieved due to the style being very long or the pollen tube being short or the incapacity of the pollen grain to germinate on the stigma of a different species, minor operations like the amputation and grafting of the style are practised very often successfully.

In place of these mechanical devices for the growth of foreign pollen on the stigma and for elongating the pollen tube, the usage of chemicals is also practised in a few cases. Those recommended to this end are 3-indole acetic acid, 3-indole butyric acid in one millionth concentration, vitamins, plant hormones, pyridines and purines.

Colchicine treatment is popular wherever the increase in chromosome number helps the crossing.

Even after gametic fusion has taken place the embryo in some cases may not develop properly. They may die long before they are mature. In such cases excising the young embryos from the immature fruits and growing them in culture media often proves successful. The culture media consist of sugars, mineral salts, plant dicotations, certain amino-acids and gelatin. Hybrid embryos which often die without attaining maturity can now be of great economic value as a means of achieving a much wider range of hybrid combinations than has been possible till now. Apart from this advantage of growing embryos, which otherwise would have got dried up, these embryos grow into seedlings without needing the period of dormancy. The excised embryos grown in culture media grow faster and attain their maximum size long before the plants from normal seeds do. Though there are certain limitations to this method, it is a noteworthy achievement and enormous work is being done on these lines.

Few examples, where the hybrid embryos were grown in cultures are [*Prunus avium* (Sweet cherry), *P. domestica* (Plum), *P. persica* (Peach), hybrids between *Solanum nigrum* and *S. luteum*; *Gossypium hirsutum* and *G. herbaceum* (Cotton); *Lycopersicum esculentum* and *L. peruvianum*; and several species of *Datura*.]

By merely providing the stimulus without the fusion of the male gamete homozygous true-breeding type may be produced. This is known as induced parthenogenesis. In this method, exposure to very high or very low temperatures soon after pollination, use of X-rayed pollen, use of foreign pollen i.e. pollen from another plant belonging to the same family or a different family, delayed pollination and chemical treatment are used.

The importance of the production of adventive embryos (embryos arising from the

nucellus or the integument) is being greatly realized in horticulture. In nature adventive embryos have been noted often in Citrus and Mango. Adventive embryos can be produced by following certain techniques. Embryos so produced can be as safely propagated by seeds as by budding or grafting. Since seedlings can be raised more cheaply, the production of adventive embryos would obviously have a great advantage.

Some of the world's most important fruits are seedless or have only abortive seeds. As examples may be mentioned orange, cucumber, banana, pineapple, grape, grape fruit, breadfruit and persimmon. They have arisen either by gene mutation or by hybridization.

It is understood that fruit formation is induced by certain hormones secreted by the pollen grains independent of seed formation. The gametes are concerned with the formation of seeds. To give only this stimulus required for fruit formation extracts of pollen grains and powdered pollen are often used. These are sprayed over huge fields or orchards or touched on individual stigmas according to the necessities. Sometimes immature, overmature or foreign pollen are also used for the same purpose.

A few years ago it was found that treating the stigma with certain chemicals also induces parthenocarp. Of all, a combination of indole butyric acid and B-naphthoxyacetic acid has been found to be the most effective and the fruits resulting from its application are as large as those produced after natural pollination. Some of the seedless fruits thus produced in the laboratory are of tomato, brinjal, pepper and chilli.

To delve into the secrets of nature is interesting and in this process, the scientist tries to understand the laws of nature and wherever possible to channelise it to his advantage. Experimental embryology though developed recently, thanks to the patient work of several workers, has gone far ahead to establish itself as one of the important sciences. With the co-operation of the embryologist, geneticist, physiologist and the cytologist the days are not far off when numerous new varieties of fruits and seeds could be produced to human advantage and solve the food problem to a greater extent.

Significance of Nur Jehan in the Moghul Empire

by

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The story of Nur Jehan must occupy a very important place in the reign of Jehangir, because few women in the history of world have displayed such masterly qualities of courage and statesmanship as this extraordinary woman, who held her husband in leading string and dominated the affairs of the State for several years.

Nur Jehan was born of Persian parents. Her father was Mirza Ghiyas Beg from Tehran. Driven by adverse circumstances he travelled towards India under the protection and help of Indian Merchant, Malik Masud who introduced him to Akbar and got him a handsome employment. Mehrunisa was born during his travel to India. By his brilliant qualities and hard work, Mirza Ghiyas Beg rose to high positions and in 1595 became Mansabdar of 300 and appointed as Diwan of Kabul.

In the mean while little girl Meherunisa grew up and at the age of 17 was married to Ali Quli Istajulu, a persian adventurer.

Ali Quli was of humble origin, a servant of Shah Ismail II of Persia. By strange turn of circumstances he came to India and entered the Moghul service. He was appointed later in the service of Jehangir. When Jehangir became the king, he sent him to the Suba of Bengal.

But Bengal at this time was seething with troubles and reports come that Ali Quli or Sher Afghan was insubordinate and disposed towards rebellion. So Qutbuddin the new Governor of Bengal was directed against him and in the scuffle that followed, both Qutbuddin and Sher Afghan were killed. Meherunisa along with her daughter Lalli Begam was sent to the court where she was

kept in charge of dowager Queen Sultana Salima Begum. Chanced to see her at fancy bazaar in March 1611 and charmed by her beauty, Jehangir married her and gave her the title of "Nur-Mahal" a "Light of the Palace" which was little later changed to 'Nur Jahan' or "Light of the World".

At the time of the marriage—She was 35. But advancing age had done nothing to mar the freshness of her charm. She still possessed the beauty of her youth and many pictures are indicative of her superb loveliness. Further her character haughtily and proud re-enforced her charm and made her famous for all that is lovable and attractive in womanhood. She had piercing intelligence & versatile temper and sound common sense. She could understand most intricate problems of the State without any difficulty. The greatest Statesmen and Ministers bowed to her decisions. She was fond of poetry and wrote verses. She was not only beautiful but lover of beauty as well. She added to the splendour and glory of Mughal Court. She set the fashions of the age, designed varieties of silk and suggested models of jewellery.

She also possessed great physical strength and courage. She worked very hard and no detail of administration escaped her notice. Besides she was generous, and refuge of the poor. She was charitable and thus "asylum of all sufferers." Her devotion for her husband was unmatched. No wonder he entrusted all his Government to her and used to remark "I have sold my kingdom to my beloved Queen for a cup of wine and a dish of soup."

But her influence over her husband was not for good. For though she had many virtues

—she had her faults too. For example she was intensely jealous and possessed inordinate ambition. Her Subtle machinations to preserve her own overbearing power gave birth to intrigues and rebellions. It was under her influence that Jahangir's character and strength of will greatly deteriorated. When he embraced the soft allurements of pleasure and abandoned himself to indolence and dissipation, he became the dupe of an ambitious woman. Her ambitions, artifices sucked the life blood of the state for which all her brilliant qualities and charming disposition were but a poor recompense.

Her influence lasted from 1611 to 1627. In the beginning she worked with the help of her father, brother and Prince Khurram. But soon her inordinate ambition brought about party factions. Jahangir was slowly declining in health and Nur Jehan got alarmed at it. Just at this time her father who was a tower of strength for her died. And she could not depend upon her brother who was more interested in his son-in-law Prince Khurram. So, she was left to her own resources to retain power. She tried to strengthen her position and notwithstanding the fact that Prince Khurram was the acknowledged heir to the throne after Jahangir, she put forward the claims of her own son-in-law Prince Shahryar who was a mere puppet in her hands. This led to serious consequences. The court and the harem became the centres of political intrigue. By playing upon the feelings of her husband, she ceaselessly intrigued to dislodge Khurram from the place he had found in the hearts of the people, she worked hard to undermine the increasing power and influence of Khurram

who had become "Shah khurram after Mewar campaign and "Shah Jahan" after Deccan campaign. So Shah Jahan rebelled in 1623. He was however suppressed by general Mahabat Khan who emerged all the more greater as a result of this suppression. So Nur Jahan alarmed at the increase of his powers, plotted against this redoubtable general and drove him into rebellion. He arrested the emperor and held reins of Government for 100 days. He was however defeated and he fled from the country. Little later Jahangir died in 1627 and Shah Jahan who was away in the Deccan hurried to the place and ascended the throne in February 6th—1628. Finding her cause lost—Nur Jahan retired from politics. "So if Jahangir's reign forms an inglorious period in the history of the Mughals, she must share the responsibility in no small measure. But Dr. Tirpathi is of different opinion. He feels that her influence over her husband was moral, emotional, spiritual and possibly intellectual. Her influence was so absorbing—that it however led people to believe that her influence in the political field was equally great. This has not been supported by true facts. Only once she took an appreciable part in war and that was when her husband was in the grip of Mahabat Khan. The driving motive being the love for her husband and the desire to uphold respect and vindicate the dignity of the crown of which she was an ornamental part." As regards rebellions of Khurram and Mahabat Khan—he views them as works of imagination and popular fancies. To him therefore; Nurjahan,—far from being an evil genius Lovering over Jahangir was his guardian angel."

Development of the Cabinet

by

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An important innovation made during the Hanoverian period was the development of the cabinet. Its development was the direct consequence of the Revolution of 1688. This consequence was not foreseen by the statesmen who engineered the revolution. The cabinet was not the invention of one man or even of a series of reformers. It grew gradually under the pressure of circumstances. We do not find a mention of this institution by the eighteenth century writers on the constitution of England. It has not received legal recognition even to the present day. Yet it is the very pivot of government.

An English cabinet is a small council of Ministers not recognised by law, still controlling the government. At different periods of the English history it has been formed in different ways. In the seventeenth century the monarch selected the persons in whom he had confidence and this composition formed the cabinet. In the eighteenth century it came to be formed of those persons who commanded the majority of the House of Commons. Thus, in its earliest form the cabinet was the creature of the king whereas in its subsequent form the cabinet is the creature of the Parliament. This transition was brought about by the Revolution of 1688.

The word '*Cabinet*' is found in Lord Bacon's *Essays*. It dates from the beginning of the seventeenth century. The Privy Council was too large for the work which it was expected to do. Many members of the Privy Council lacked the industry, knowledge and ability to take an active part in the government. From the time of the Stuarts it became the practice of the kings to discuss the affairs of the State with a few men who were their favourites occupying high offices with great talent and

experience. The decision arrived at was formally resolved in the larger Privy Council. As we have already seen, this inner circle of favourites of the large Privy Council called by the name of cabinet was not recognised in law. The general public were not aware of the inner circle of the Privy Council who advised the king. It was therefore unconstitutional. The Stuarts with their arbitrary rule were supported by their favourites in all their acts of despotism by tendering their advice in secret without being exposed to the public. A king who wanted honest advice would never consult a mere clique in the Privy Council. It was the privilege of the Privy Council to have their opinion asked and it was recognised by law as the king's proper adviser and the general public knew who the members of the Privy Council were. Though the members of the Privy Council were bound to secrecy still Parliament could call the whole council to account if the king persevered in evil courses. But this would not be possible if some unknown persons tendered advice secretly to the king who acted despotically.

Because the Privy Council became incapable of governing an attempt was made after the Restoration to make it less cumbersome and more useful by dividing it into committees. Thus there was a committee for trade and plantations and the committee for foreign affairs. Charles II, in spite of the committees, consulted his favourites the five councillors so often denounced as the *Cabal*. Their unpopularity suggested to Sir William Temple, the need for a further reform of the Privy Council. He proposed to form a new council of thirty members all men of independent fortune. One half were to be the servants of the crown while the other half were men of independent fortune. Still it was too large

and too discordant to be of any use. It soon broke up and Charles reversed to his old practice of secret councils. James II followed the same method. Similarly after the Revolution of 1688 William III ignored the Privy Council and settled the Policy with the help of a few advisers even though the Act of settlement required the Privy Council should transact all business of the government. It remained a dead letter.

The cabinet or the king's advisers was not composed of the same party which had the majority in the house of commons. The king chose strong persons who were not so much disliked by the majority in the House of Commons as to run the risk of impeachment. It was also not necessary that all men of the cabinet should enjoy the confidence of that majority, because it was an accepted principle that the king was to govern and the commons to prevent him from misgoverning. But the revolution of 1688 made it impossible to adhere to this principle. A state of affairs was created in which no government was possible without the active and continued co-operation of the house of commons. In order to obtain this co-operation the king was obliged to choose ministers who enjoyed the confidence of the majority in the house of commons or those who held the opinions of the majority in that house.

William III chose his ministers from one party on the advice of Lord Sunderland in order to run the government with less trouble. Thus the whigs were the first ministers to

assist the king and tender advice as one party. Soon they lost the majority in the commons to the Tories under Marlborough.

Thus by degrees, with no fixed design on the part of anyone, and simply as a matter of convenience, grew up the practice of choosing ministers solely from the party which was strongest in the House of Commons. Once this principle was established, momentous consequences followed. Formerly all that was expected of ministers was that they should be loyal to the king. Now they were expected to be loyal to the party and consequently to each other. In form they were servants of the crown and in fact servants and advisers of the majority in the House of Commons.

Till the Hanoverian period the king presided over the cabinet and he had the dual role to play by presiding over cabinets constituted from one party or another. But since the Hanoverian period the kings discontinued this practice and it was through an accident that George I could not speak English that the king abstained from the cabinet meetings. This gave rise to the custom, now firmly established, that the cabinet consults together apart from the sovereign. Thus when once the sovereign had ceased to preside the cabinet, it was natural to seek some other president. The person naturally chosen was the Minister most respected by the party. The leader of the party thus tended to become a Prime Minister.

The Purpose of Politics

by

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Ordinarily politics is understood as an "art of controlling a party, securing a nomination, winning an election of getting an official appointment." But in reality it is not entirely correct. The relation of individual members in society needs regulation. It is done often through the instrument of govt. Government is clothed with authority to make laws and enforce them. Politics thus deals with political society—a society in which people are trained by their leader representatives to obey laws, to ensure peace and order and to play their part in the national welfare activities. Political science aims at the promotion of the "Social good" on the largest scale possible. The individual, his rights and liberties, his security and happiness—all these are affected by the form and structure of the govt. under which he and his fellow beings live. Thus one is forced to know something or other about the organisation, function and principles of government.

Science and technology aims at the promotion of man's material requisites. Religion and philosophy aims at the fulfilment of man's spiritual needs. Literature and fine arts satisfy esthetic tastes of mankind. The object of education as a whole is the attainment of a cultural perfection—a perfection which enables men and women to be born again into a world of truth, understanding, sympathy and co-operation. However in the words of Socrates first and foremost "man is a political animal." Control, regulation, restriction, progress and promotion—all these are accomplished in a systematic and civilised manner only in a society politically organised. Mere material progress devoid of the sound influence of political action will result into the ruination of civilisation as a whole. It is because of this too much emphasis on material

progress in the West the peace of the world at present remains disturbed. The world at present is in the grip of hatred, distrust and suspicion. The fear of another world war looms large on the political horizon. On the other hand due to too much of emphasis laid on spiritual values without any sound political organisation, the eastern hemisphere during the 17, 18 & 19 centuries was forced to acknowledge the political suzerainty of the west. However the two great wars appeared as a boon to the oriental cultures and civilisations in freeing them from their political subjugation.

At present when people are talking of cold wars, cobalt bombs, inter-continental missiles and mind control machines, it is the duty of every one to have sound political understanding of national and international developments.

Politics not only deals with the various forms and functions of government but also with the theories over man's political behavior and his relations with the state. Political science deals also about international relations and obligations. Political thought originated with the Greeks. However evidences of political theories and institution are available even from vedic literature. Chanakya's Arthashastra is an encyclopaedia dealing not only with politics but with different branches of knowledge also. Politics is closely related to history, economics, ethics and psychology.

Any grievance social or economic, educational or religion will lead to public agitation and unrest necessitating political action and interference. The study of politics helps to learn different types of legislature, executive and judiciary and their comparative merits and defects. The problem before politics is to

discover not what govts. prescribe but what they ought to prescribe. Thus the approach of politics is always national and ethical.

Establishment of social justice, economic equality, liquidation of poverty, illiteracy, ignorance and other religious, racial, linguistic and cultural disabilities are the main objectives of a sound political system. All the written constitutions of the world guarantee fundamental rights and liberties. But in practice this century witnessed the failure and many govts. to observe constitutional practices and conventions. Thus in 20th century many countries including France experienced dramatic military coups. The reason for these sad and savourless experiments are due to mainly political instability. On the otherhand law and order prevails in a country politically stable despite its economic backwardness and social differences.

In India we have not yet attained that political maturity. Political consciousness in a common man of the street is miserably lacking. People are often exploited, misled and misguided by a handful of selfish political

fanatics. This is often done in the name of race, language and culture. However it is hoped that an average Indian is in no way inferior in his political judgment compared to his counterpart in Europe. Our unity, our economic prosperity, cultural progress in short our existence itself at present is depended mainly on our political stability. Surrounded by enemies, faced with innumerable internal problems, the future of this country is largely left in to the hands of the youngsters of this generation. Internationally our counsels are highly honoured abroad. Our efforts in easing tension in the Indo-Chinese, Indonesian, and Korean issues as well as in the Suez and Lebanese crises have been highly successful averting a Third World War. We are respected much and no more our intentions are suspected in the comitry of nations. Hence students of all branches are expected to study and understand the principles of politics and political developments. However their participation is highly undesirable. Politics thus forms the primary creed of a twentieth century world citizen.

A Statistical Study of the Indian Economy

by

UNNI KRISHNA MENON, M.A.,

We are now more than half way through the Second Five Year Plan. We have achieved so much during this period, but the progress among the various sectors of the economy has not been uniform and has been rather disappointing. This is to be expected in any kind of democratic planning. Democratic planning is a contradiction in terms. Planning indicates a sustained and organised control of consumption, production, distribution and allocation of resources by the State, in order to achieve a better standard of living and a higher level of employment. Under such a system the price mechanism does not have free play. The Planners in India have conveniently ignored this aspect. The long term price trends are definitely on the increase.

Prices :

The wholesale price index for all commodities stood at 112.9 for the month ending March 1959 (Base: 1952-'53=100) as against 108.4 for 1957-'58 which means a rise of 4.2%. The wholesale price index for food articles alone stood at 115.2 for the month ending March 1959 as against 108.4 for 1957-'58 which means a rise of 8.3% (Base: 1952-'53=100). If the base is shifted to the year 1948, the increase is of the order of 45%. The prices of other commodities are also on the increase but the pattern is bewildering. The consumer price index for working classes stood at 161 for 1958 as against 152 for 1957 (Base: 1952=100), which shows a rise of 9 points in 1958. If the consumer price index base is shifted to 1948, the price rise would be of the order of 493 points (± 2.0% error). Such price trends are fraught with danger. If prices are unchecked the Plan may succumb to the erratic price structure.

Food :

In an under-developed economy where the propensity to consume is high, the income generated through planning will ultimately increase effective demand for food and necessities. The rigidity in the supply of food and the increased total demand would lead to inflationary price movements. The existence of unemployed resources would not mitigate price rises. Discussions on the means and methods of increasing food production have been going on for a long time. The Planners are yet to solve this dilemma. The Asoka Mehta Committee has rightly pointed out that India might have to continue importing foodgrains for a long time to come. This is truly a crucial and intractable problem. Government estimates indicate a deficit of about 3 millions tons of foodgrains during the year 1958. The index of food production stood at 112.6 at the end of March 1959 as against the peak level of 121.8 reached in September 1958, which shows a decline of production of the order of 7.6%. But the wholesale price of food articles has increased only by 8.3%. This is an encouraging sign. In the meanwhile the Government of India has arranged a further loan with the U.S. to import 3.5 million tons of wheat under P.L. 480. However, this is by no means sufficient. An enormous cushion of foreign exchange is essential to import foodgrains in the years to come. The required foreign exchange is nowhere in sight. There has been such a strain on our foreign exchange resources for the past one and-a-half years that it is by no means easy to divert resources for food imports, without stifling the other developing sectors of the economy. The way the Planners are going to solve this problem will

be watched with interest by all. The Government is walking on a tight rope. If one sector of the economy is weak the other sectors will follow suit.

Paradoxes of Industrial Production :

The economic picture which emerges from an analysis of the economy is very confusing. There are indications of inflationary pressures and high prices as well as business slackness. The rate of increase of industrial production has fallen and the money market has been experiencing easy conditions. The production of textiles reached on all time peak of 5317.4 million yards of cloth in 1957 as against 4927 million yards in 1958. However the demand for cloth has been decreasing. This is surprising in the context of a developing economy. Further, the exports of cloth have declined from 876 million yards in 1957 to 600 million yards in 1958. This is by no means a healthy sign. The high price of Indian textiles in foreign markets has handicapped cloth exports. The way to stop this rot is by reorganising and rationalising the Textile Industry, but India has to pay a high price for rationalisation. The price is unemployment. At this juncture the boggy of unemployment should not rear its ugly head. In the light of such a steep decline in cloth exports and the structural imbalance of the Textile Industry, it is doubtful whether Cotton Textile Export Promotion Council would be able to shift the export trade in India's favour.

The rate of increase of industrial production in 1958 has been disappointing and the causative factor is the foreign exchange difficulty. The general index of industrial production stood at 139.4 for the year 1958 (Base: 1951=100) which shows a rate of increase of only 2.1 in 1958 as against 4.7 in 1957.

The export earnings of tea to Britain has declined by £ 20 millions in 1958 but the production of tea has increased.

The World Bank experts who came down to India in September 1958 were very critical about these in ends.

However, the only compensating factor is the buoyant prices of stocks. The stock prices since the beginning of 1958 has been encouraging in spite of the adverse factors. Stock prices have recorded a continuous rise and there has also been a steady increase in the volume of new issues.

In many industries in India there is a large gap between the installed capacity and current annual production. In many cases the installed capacity is far in excess of the targets set for them under the Second Plan. But unfortunately the industries are constrained to work below capacity because of adverse economic circumstances and shortage of essential raw materials. This is a national and economic loss. The following industries*¹ are working below installed capacity.

1. Automobile and Ancillary Industries.
 - (a) Motor cycles and scooters.
 - (b) Motor cars.
 - (c) Trucks.
2. Machine Tools.
3. Diesel Engines, pump sets, Tractors, Road Rollers.
4. Electrical Engineering Industries.
 - (a) Conductors.
 - (b) Refrigerators.
 - (c) Dry Batteries.
 - (d) Fans.
 - (e) Motors.
 - (f) Electric Lamps.
 - (g) Radios.
 - (h) Air-Conditioners.
 - (i) Wires.
5. Metallurgical Industries.
 - (a) Virgin metals.
 - (b) Semi-manufactures.
 - (c) Non-ferrous alloys.
 - (d) Steel castings.

1. Source : Ministry of Commerce and Industry Report 1958-'59.

6. Chemical Industries.

(a) Light chemicals.

(b) Heavy chemicals.

7. Pharmaceuticals and Drugs.

8. Rolling Stock.

(a) Locomotives.

(b) Wagons.

(c) Passenger coaches.

9. Rubber Goods.

10. Textile Industry.

11. Glass Industry.

12. Bicycle Industry.

External Resources :

When the Second Plan entered the second year the clouds started gathering and by June 1958 the economic climate became gloomy. The plan started bending and creaking under its own weight. The stresses and strains merely reflect the diseconomies of a high rate of investment. The strength of the economy was challenged by such an unprecedented scale of investment and expenditure. The economy could not bear it. As a result the target of expenditure had to be scaled down to Rs. 4500 crores from Rs. 4800 crores and it is doubtful whether even this target would be achieved. When the estimates for 1956-57 were first drawn up, it was expected that there would be a deficit of Rs. 1,100 crores which was to be met by foreign aid. No doubt India has obtained a sizeable measure of assistance from the International Monetary Fund, the World Bank, and the Governments of U. S. A., U. K., West Germany, Japan, and Canada. But the scale of assistance is not satisfactory when the size of the plan is taken into consideration. There is still an unfilled gap of Rs. 560 crores. In respect of the requirements for the last two years of the Plan, arrangements are being made for obtaining the balance of 650 millions (about Rs. 325 crores) from the World Bank. If this is the scale of foreign exchange expenditure

in the Second Plan the Planning Commission would do well to ascertain the foreign exchange assistance in advance, before drawing up the targets for the Third Plan. The Third Plan estimates will present complex problems in the shape of interest payments on loans already contracted. The servicing of these loans is bound to create foreign exchange difficulties. According to Mr. Eugene R. Black the servicing of World Bank loans comes to \$100 million a year. (Commerce Annual 1958. Page 19).

Internal Resources :

The performance of market borrowings has not been satisfactory. The original targets for the five-year period were Rs. 700 crores from market loans and Rs. 500 crores from small savings. The net receipts of market loans in 1956-57 were Rs. 141 crores and in 1957-58 it amounted to only Rs. 80 crores. Similarly the performance of small savings has been below expectations. The net receipts in 1957-58 were about Rs. 70 crores as against the average annual target of Rs. 100 crores. In spite of the favourable factors the small savings scheme has not met with success as the Government anticipated. It is doubtful whether the budget estimate of Rs. 100 crores for 1958-59 would be realised.

Money and Banking² :

The money supply with the public increased to Rs. 2,498 crores by March 1959. This expansion was brought about by the increase in public indebtedness to banks, balance of payments surplus, and increased bank credit facilities. The bank credit expansion reached an all time record of Rs. 1013 crores by the quarter ending 1959. The rate of increase has also been remarkable when compared to the 1956, and 1957 figures.

Balance of Payments :

The balance of payments and the balance of trade continued to be adverse in 1958 but as compared with 1957 the size of the deficit

2. Source: Records and Statistics—Eastern Economist May 1959.
Reserve Bank of India Bulletin—April 1959.

was smaller. The balance of payments deficit was Rs. 354.8 crores in 1958 as against a deficit of Rs. 451.9 crores in 1957. The adverse balance, with O.E.E.C. countries continued to be slightly more than 50% of the total indebtedness. It was of the order of Rs. 249.8 in 1957 as against Rs. 178 crores in 1958.

India's Balance of Payments³

Current Account

Areas	(Crores of Rupees)	
	1957	1958
All Areas	... -451.9	-354.8
Sterling Area	... - 46.5	- 44.3
Dollar Area	... -103.5	- 61.9
O.E.E.C. countries	... -249.8	-178.0
Rest of Non-Sterling Area	... - 51.1	- 67.6

The favourable trend in the balance of payments position was mainly due to the stringent import restrictions imposed by the Government of India in 1958, to tide over the foreign exchange crisis which developed by the beginning of 1958. These restrictions have not been applied to essential raw materials required by industries.

However, the terms of trade has not been in India's favour because of the exports primary products. The export earnings of these products have declined by 20% in 1958.

Forecast :

At the present rate of increase of 1.5% or 5 millions per year, the population will cross the 400 million mark by July 1960.⁴ This increase is bound to become larger as years pass by unless unforeseen developments reverse current trends, because population would always increase in a newly developing economy during the early stages. This was the case in England, U.S.A., and U.S.S.R.,

when scientific and industrial development started. The progressive improvement of public health and better social welfare schemes would give an impetus to population growth.

The net addition of 5 millions a year would mean that at least 2½ million men would compete in the labour market. This would of course depend upon the assumption that the remaining 2½ million women (based on constant sex ratio) do not depress the labour market. This is not a very realistic assumption, but nevertheless essential for further projection and analysis. Such assumptions are important in all social accounting problems.

In the light of the foregoing analysis, one can be sure that the establishment of a few heavy industries and the setting up of a large number of scattered small industries will not solve the problem of open unemployment, disguised unemployment and underemployment. We would do well to plan for labour intensive techniques of production rather than apply advanced Western technology which is labour saving.

As matters stand the Government can never hope to fulfil the aims laid down in the Preamble and the Directive Principles of State Policy of the Constitution. The Constitution aims at securing to all citizens social, economic and political justice; liberty of thought, expression and faith; equality of status and opportunity, and assuring the dignity of the individual. Besides, it promises equitable distribution of income, prevention of concentration of wealth, and free and compulsory education within ten years for all children until they complete the age of fourteen. The aims are good but we may not be able to fulfil them for a long time to come.

3. Adapted from Records and Statistics Eastern Economist May 1959 pp. 153.

4. Based on Census of India Report—1951.

CO-OPERATIVE FARMING

by

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Not infrequently do we hear of politicians waxing eloquent over controversial issues like co-operative farming. Not a day passes without some enthusiast or other defending co-operative farming tooth and nail or a ginger group smashing it to smithereens. It all started with the Resolution on Agrarian Organisation Pattern adopted by the epoch-making Nagpur session of the Indian National Congress. It asserted unequivocally in the following strain: "The future agrarian pattern should be that of co-operative joint farming..... As a first step, prior to the institution of joint farming, service co-operatives should be organised throughout the country. This stage should be completed within a period of three years." Far from its being forgotten as an ordinary step, this has provoked much discussion and now a regular acrimonious controversy goes on, on the pros and cons, on the desirability and practicability of co-operative farming. This has even led to a division in party ranks and now prominent leaders are throwing bouquets at each other.

The term 'co-operative farming' has been rather loosely defined in the past to include different types of societies for agricultural co-operation. Following the Co-operative Planning Committee Report (1946), co-operative farming societies have generally been classified into four categories: (a) Co-operative better farming societies; (b) joint co-operative farming societies; (c) Co-operative tenant farming societies; and (d) Co-operative collective farming societies

A clear-cut distinction between these different types or societies will be conducive to clear thinking. Co-operative better farming society undertakes such common services as the distribution of improved seeds, fertilisers,

insecticides etc., It provides for credit, marketing, land development, irrigation or joint harvesting. This is the same as Service Co-operatives or what Dr. Otto Schiller called "individual farming on co-operative lines."

Under the co-operative joint farming society, the land is pooled and joint cultivation is undertaken by the society. To couch it in the language of the Planning Commission: "Co-operative farming necessarily implies pooling of land and joint management." Members retain ownership of the land pooled and work together and receive wages. The proceeds, after meeting the expenses of cultivation and other charges like contribution to the reserve fund will be distributed to the members either proportionately to work done by each person or proportionately to the land contributed by each person or equally among all members or any combination of them. The third type is the co-operative collective farming society. Here the land is pooled and cultivated jointly. It is held by the society. Society manages the land, pays every member for his labour. In the end the proceeds are distributed according to the wages earned by them. Such societies are generally formed on Government land or land newly brought under cultivation. Dr. Otto Schiller distinguishes co-operative farming from collective farming in the following words: "The co-operative is an association of free and autonomous economic units, whereas the collective enterprise consists of members who have lost their economic autonomy." Co-operative Tenant farming society is composed mainly of tenants. The society takes land on lease from the Government or landlords and divides it into a number of holdings each of which is leased to a tenant cultivator who is the member of the society.

The member pays the rent fixed by the society. The society performs other functions similar to those of better farming society. Generally, landless labourers and displaced persons take to this form of cultivation.

Some of the laudable features of co-operative farming cited in this connection are the freedom to leave the society whenever the members like and the option to join the society of their own volition free from compulsion. Different people advocate co-operative farming to attain different objectives and their emphasis on social or economic arguments vary with their respective objectives. The following are said to be the basic and fundamental reasons for encouraging co-operative farming in the sphere of our agricultural sector.

Co-operation has succeeded in many countries as a method of solving problems confronting the agriculturist, who left to himself would not have tackled them singly. In the field of credit, consumer goods and in many others, the co-operative principle was found to be of immense use. To extend such a noble principle to the field of farming operations is not a novel idea.

Co-operative farming is envisaged from considerations of social justice. It is said to extinguish the inequality in the distribution of wealth and to do away with exploitation in the agricultural sector. It will co-operativise property besides developing among the people the spirit of co-operation, self-help and equality.

Landless labourers constitute a serious threat to the stability of the economic order. Pressure of population on land led to the further fall in their standards. According to the Agricultural Labour Enquiry Committee 30.4% of the rural families were agricultural labourers 50% of whom were landless. The Agrarian Reforms Committee estimated the number of landless agricultural labourers at 3½ crores and their dependants 10 crores. This is a peculiar class in so far as it is not possible

for industries to absorb them for they are unskilled. Co-operative farming aims at the amelioration of this class.

One problem that defied solution in the past and hence has become part of the insoluble issues is the subdivision and fragmentation of holdings. It brings in its train endless economic evils, not to speak of its sociological consequences. According to the 1951 census the availability of land was about 1.6 acres per person dependent on agriculture for the country as a whole. With dwarf holdings to support himself and his family, the poor Indian peasant can never hope to lift himself by his bootstraps. Co-operation becomes inevitable at that stage.

Large-scale production is a practical proposition under co-operative farming. All the economies of scale are brought to the door of the farmer. In co-operative farming, farming can be done on a large-scale and there will be a reduction in cost, specialisation and managerial skill. Mechanisation of agriculture which at present is beyond the ambit of the average farmer, is possible when he joins a co-operative farming society.

Of late, co-operative farming is advocated in a different context. The adoption of this method will increase agricultural production to a great extent through the application of better techniques of production through the diversification of agriculture and through bringing about land improvements which directly increase the production of each unit of land like better cultural and cultivating practices, application of scientific manures etc. These improvements would not be made so long as the people who decide them happen to be large numbers of ignorant individuals. The organisation of co-operative farming on the other hand facilitates the task.

Agriculture has to play a crucial and leading part in economic development since capital formation in our underdeveloped country can be looked for mainly from the agricultural surpluses. Such a strategic

sector cannot be left to unorganised individuals where decisions may not be in consonance with social requirements. Co-operative farming will not only lead to capital formation but also run agriculture in accordance with the requirements of social needs.

Despite such convincing arguments in favour of co-operative farming, critics let fly a lethal shaft at them and retort in a vituperative language that their arguments are little more than specious. Some are very sceptical about the increase in food production which is sought to be achieved by resorting to co-operative farming. Mechanisation of agriculture is a necessary concomitant of large scale production. Mr. Masani with the help of some statistical data proves that productivity per acre is high in small holdings when compared to large farms. In his opinion, intensive cultivation alone will increase food production.

	Wheat (Per acre in Quintals)	Rice (Per acre in Quintals)
U.S.A. (Large farms) ..	12.2	28.3
U.S.S.R. (Large farms) ..	9.3	21.5
U.K. (Small farms) ..	28.5	—
Japan (small farms) ..	22.6	48.5

Mechanisation, it is argued, will increase productivity per man. What is needed in the case of Indian agriculture is not so much productivity per man as productivity per acre for we can afford to employ more men for agricultural operations. In other countries, mechanisation was found to be necessary due to an adverse man-land ratio. The salvation of Indian agriculture lies in intensive cultivation.

Pooling of lands together will entail an institutional change. Individual peasant proprietorship will be replaced by collective farming. Such a change may not be desirable from the sociological point of view. Dr. Chandrasekar after a tour of China and Japan came to the conclusion that technical and technological improvements must precede institutional changes and the latter will meet

with greater resistance in underdeveloped countries. "Our model" said he, "should be Japan and not China." The secret of Japanese agricultural productivity lies in technological improvements and not in institutional changes.

Prof. N. G. Ranga in his penetrating analysis on co-operative farming explodes the "myth" of economies of large scale production. He draws a distinction between farming and non-farming operations. While the farming activities refer to the operations from ploughing to threshing, the non-farming activities in agriculture include the credit, storing, marketing, and processing operations. The economies of scale resulting from farming operations can be separated from those of non-farming operations. Co-operative farming is mainly envisaged to reap the economies of scale in non-farming operations which could as well be obtained by organising service co-operatives even in the absence of co-operative farming.

Again, the economies of scale mainly take the form of reduction in costs. Costs may be divisible or indivisible. The divisible costs like fertilisers, seeds, manures, electricity etc., have no relation with the scale of farming. They can be increased or decreased without any effect on average costs as the size of farm increases or decreases. It is the indivisibilities in farming that have a direct relation to its size. Machinery forms the main indivisibility. Machinery ultimately tends to reduce labour. As labour costs grow and the need to feed a non-agricultural population becomes acute, machinery will be gradually introduced, and so its pace need not be quickened in the guise of co-operative farming.

If efficient management is pointed out as one of the proved advantages of co-operative farming, there also we will be committing a grievous blunder. Efficiency in management in agriculture consists in acquaintance with the latest scientific techniques in farming. Unlike in industrial management, there is no

considerable scope for efficient management in agriculture, for a large part of the operations is dependent upon the whims and fancies of Nature. In agriculture what is needed is the "loving management."

Dr. Johnson, a specialist in farm management who recently visited India with a Study Team, holds the opposite view. According to him farm management of a joint farming Society is too complex to be managed by its members. He is opposed to the introduction of co-operative farming on the ground that India lacks experts in this field.

Co-operative farming necessarily involves the appointment of many supervisors, managers, auditors, accountants, etc., and there is every possibility of a hierarchy of bureaucrats springing up. Ultimately the members of the society will have to foot the bill.

Unlike industry, the nature of agricultural operations is such that only a few of their functions will be performed by these indivisibilities and that too only for a few days in a year. Is it not advantageous to combine for that purpose alone for a brief period? Should we herd together for ever under the captivating caption of co-operative farming?

These are some of the theoretical arguments. Obviously there is much exaggeration in the contentions of each side. Every-thing must be taken with a grain of salt. Let us descend down to brass tacks and see how far co-operative farming is practicable.

One such practical consideration is the voluntary nature of co-operative farming. It is said: "There is no question of putting peasants in co-operatives, but only taking them." Or as Paeko Romae points out, "the co-operative does not go to the individual producer but he comes to it". Compulsion is the very antithesis of co-operation. The country is wedded to a democratic path; persuasion instead of coercion is accepted as the keystone of our policy. According to the Bombay Co-operative Societies Act, if people

owning 50% of the land—which might well be below 50% of the population—agree to co-operative joint farming, the remaining people must be compelled to join the society. The Planning Commission also has blessed this view. According to the Madras Committee of Co-operation, however, even if 75% of the population agrees to co-operation the other 25% should not be forced to join. Both seem to be extreme views. An attempt to force people when 49% of the population disagrees, would breed serious discontent. On the other hand, refusing to compel 25% when 75% has agreed will be equal to giving veto power to the dissenting minority. A middle way should be struck under these circumstances.

Should voluntary membership in the proposed dispensation necessarily involve a complete surrender of all the lands to the pool or should a member be allowed discretion to offer the whole or part of his lands? And then, would or would not the "voluntary" member be vested with the option to withdraw from the joint farm, even after giving due notice? If such option is not allowed, not even 5% of landholders are likely to join. On the other hand, if option is allowed, there is the inevitable danger of unsteadiness in working capital, labour force, etc. This problem should receive due attention.

Emphasising the voluntary aspect of co-operative farming, Mr. Nehru in an emotional tone asserted thus: "I shall go from field to field and from peasant to peasant begging him to agree to it. If the peasants do not agree, I cannot put it into operation, it is for them to do it."

Yet another issue that must be faced squarely is the question of debt settlement. Sample surveys show that agriculturists can be analysed under the following heads: (1) Debt-free families, (2) Indebted but can manage on private account, (3) Indebted but can be assisted through co-operatives, (4) Indebted but can be helped through special measures and special institutions intended for relief and rehabilitation and (5) Indebted,

incapable of any help, due to absence of assets or smallness of income. Till now, not even a single village in India has been dealt with along these lines for the purpose of debt relief. If the proposed co-operative farms should take over all the debts of the members, funds would be utterly inadequate, and a huge margin would have to be provided for bad debt. This in turn must seriously affect the annual dividend. On the other hand, if members' debts should be left alone, that would be unfair to the present creditors because they could proceed against any standing crops. A way must be found to help the poor agriculturist out of this muddle.

There is a lurking fear in the hearts of critics that co-operative farming will ulti-

mately lead to collective farming. Mr. Masani's vitriolic outburst against co-operative farming, characterising it as an "insidious attempt to bring in collective farming of the communist pattern by the backdoor", seems to support this view. It may not be possible to distinguish between Dr. Jekyll and Mr. Hyde. Vosiferous cry is raised against the movement of the Juggernaut of State. Nationwide experiments in co-operative farming were suggested by the Co-operative Planning Committee, the Congress Agrarian Reforms Committee and the Planning Commission. Considerable caution and careful thinking is necessary before such radical reforms are hustled through.

AT HOME AND ABROAD

by

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(on study leave)

(Continued from page 7)

Nehru-Ayub Khan Meeting: The Prime Minister of India, Mr. Nehru and the President of Pakistan, Gen. Ayub Khan had informal talks on September 1, 1959, at the Palam airport where General Ayub Khan halted on his way from Karachi to Dacca. They agreed that all "outstanding issues between India and Pakistan should be settled in accordance with justice, fair play and in a spirit of friendliness, co-operation and neighbourliness". On the conclusion of their talks, a joint statement was issued by them. Mr. Nehru acknowledged with satisfaction at his Press Conference on 11th September, 1959, that this meeting with President Ayub Khan did create "a healthier atmosphere".

Nehru's Visit to Iran and Afghanistan: Prime Minister Nehru left New Delhi on September 14, 1959, on a good will visit to Afghanistan and Iran. This visit of the Prime Minister was in response to long-standing invitation from the governments of the two countries. This was Mr. Nehru's first visit to these two countries which have had close historical associations with India.

The Prime Minister reached Kabul on September 14, 1959. He was given a warm welcome by the people of Kabul. At a banquet given in Kabul on the 15th September, 1959, in his honour, Mr. Nehru, said that military pacts would not solve world's problems. He added that non-alignment and the refusal to join military pacts was the policy of both Afghanistan and India and that it was one of the factors which drew the two countries closer together.

Mr. Nehru, while replying to a civic address presented to him by the Afghan Capital's

Mayor on 16th September, 1959, said that unless Asian and African people caught up with Western countries in technological progress their freedom would again be in jeopardy. The ancient heritage of countries like Afghanistan and India was great and they should no doubt preserve all that was good in it, but at the same time, they should adapt themselves to the changing times and take to new avenues of human upliftment thrown open by science.

In a joint statement at the conclusion of their talks, the Prime Ministers of India and Afghanistan said that they had agreed that the existing cordial relations between the two countries "should be sustained and enlarged by increased cultural co-operation and promotion of mutual trade". Further they added that the policy of non-alignment which the two countries had adopted and actively pursued and their similarity of outlook on many matters of world importance had "strengthened and given further content and reality to a relationship forged by history and traditional contacts through the centuries".

Mr. Nehru reached Teheran on the 18th September, 1959, for a four-day official visit. When he replied to a speech of welcome given by the Iranian Prime Minister, Dr. M. Eghbal, he said that India and Iran would renew their past contacts and work together for the good of their peoples. He further said that countries of Asia desiring to better their lot had to face a double revolution—industrial and nuclear and that there was no getting away from it.

Addressing a gathering of the India community in Teheran on September 19, 1959,

Prime Minister Nehru urged the Indians to preserve Indian prestige and seek the friendship of all nations. He said that every country had its own ways of solving its problems and others should not interfere in this work. It was essential that Asian countries adopted the achievements of science to improve the lot of the masses.

Prime Minister Nehru was conferred the honorary Doctorate of Law on 20th September, 1959, by the Teheran University. On this occasion he said that no country could progress by merely imitating others. Every country must allow its own genius to flower. Of course, advantage must be taken of others' advances. Arguments about Communism, Socialism and anti-Communism, were important but the real difference to-day was between industrialised countries and the under-developed ones. He added that in the place of former balance of power there was now a "balance of terror". Prime Minister Nehru returned to New Delhi on 22nd September, 1959.

Experimental Television Service of A.I.R.: President Dr. Rajendra Prasad inaugurated the experimental television service of the All-India Radio on the morning of September 15, 1959, in Vigyan Bhavan in New Delhi. On this occasion, the President observed: "With the installation of the television transmitter and the introduction of TV programmes, All-India Radio is launching to-day on a big experiment".

This experimental television service has been undertaken primarily for putting out programmes of cultural and educational value, for carrying out technical investigations and imparting training to programme and technical personnel.

India has thus joined the small community of Asian nations with a Television service of her own. India is the fourth Asian country to use this means of mass communication.

The New Governor of Assam: General S. M. Shrinagesh, former Chief of Army Staff,

was appointed Governor of Assam on October 3, 1959. The significance of the appointment of a soldier as Governor lies in the context of events in the Himalayan border. We are sure that this appointment will strengthen the confidence of the people in Assam and the other border areas.

Russian Rocket to Moon: Russia's lunar rocket "Lunik II" was launched on the morning of 12th September, 1959. This spaceship has entered the gravitational pull of the moon. The "Lunik II" was a guided rocket weighing 3,324 pounds without fuel. The instrument-container weighed 860 pounds. One of the main purposes of launching the rocket was to fix more accurately the rocket's trajectory. This information is of great importance for further rocket investigations of the region of the moon and of the space nearer the earth.

According to the official report of the Moscow Planetarium, the Soviet lunar rocket "Lunik II" hit the moon's surface at 2-32 a. m. I. S. T. on Monday the 14th September, 1959. The Russians are the first to achieve the distinction of being the first nation on earth to launch a space vehicle to another planet. "To mark this event, pennants with the coat of arms of the Soviet Union and an inscription" the Union of Soviet Socialist Republics, September, 1959 "were delivered by the rocket to the surface of the moon." This is the first state insignia to reach the moon's surface.

Russia's moon rocket took approximately 34 hours to travel from the earth to the moon. The Moscow radio said that special steps had been taken to ensure that no earthly contamination of micro-organisms would affect the moon on the contact of the rocket.

This achievement had put the Russian's "definitely ahead." The scientists and engineers of the Soviet Union have to be congratulated on their success in this forward step in the exploration of space. It is a brilliant demonstration of the advanced stage of Russian science and technology.

The timing of this successful cosmic experiment was full of political and military significance, coming on the eve of Mr. Khrushchev's departure for the United States.

Mr. Khrushchev's Visit to United States: Mr. Nikita Khrushchev, the Soviet Prime Minister, left Moscow by air on Tuesday the 15th September, 1959 for the United States. He arrived in Washington and was received with honours befitting a Czar. President Eisenhower was present at the air-port to greet him. Mr. Khrushchev was accompanied by some members of his family, besides the officials. Strong security measures had been taken during his brief stop in the United States.

The President of the United States Mr. Eisenhower personally greeted Mr. Khrushchev and told him: "Although we shall not be negotiating any issues affecting the interests of other countries, I trust that a full and frank exchange of views on many subjects may contribute to better understanding, on both sides, of unresolved international problems.....After all, our common purpose should be always, a just, universal and enduring peace. It is in this spirit, Mr. Chairman, that I greet you and welcome you to Washington and the United States."

Mr. Nikita Khrushchev, the Soviet Prime Minister said in his arrival speech, "I accepted the invitation of the President of the United States to make an official visit to your country with great pleasure and gratitude.....All the peoples are profoundly interested in the maintenance and consolidation of peace, in peaceful co-existence. War does not promise any one any good; peace is advantageous to all the nations.....We have come to you with an open heart and good intentions. The Soviet people want to live in friendship with the American people. There are no obstacles to having the relations between our countries develop as relations between good neighbours."

President Eisenhower and Mr. Nikita Khrushchev talked for nearly two hours on

September 15, 1959 in what they both described as a "friendly and frank" atmosphere. Mr. Khrushchev, presented President Eisenhower with a replica of the sphere in the Soviet rocket which hit the moon on the 14th September, 1959.

Addressing the National Press Club, on September, 16, 1959 Mr. Nikita Khrushchev said that his main purpose in coming to the United States was to end the cold war and to strengthen peace. He added that the United States and the Soviet Union could use their latest scientific and technical achievements for peaceful purposes, "or they will be used for the purpose of destruction and annihilation and, as a result the earth will be covered with ashes and graves."

Mr. Khrushchev paid a visit to New York on September 17, 1959. He told a civic luncheon in his honour at New York that the State Department was responsible for hindering a greater exchange of contacts and delegations between the Soviet Union and the United States.

Mr. Khrushchev addressed the General Assembly of the United Nations on September 18, 1959. He proposed to the United Nations General Assembly that all countries should disarm themselves completely within four years. The United Nations would fulfil its noble mission far more successfully if it succeeded in cleansing itself of the elements of the cold war, which often handicapped its activities. It was the cold war which prevented People's China from having "its lawful rights in the United Nations." Mr. Khrushchev's appearance in the United Nations was perhaps the most dramatic event which had occurred there in recent years but his utopian proposal for complete disarmament proved to be disappointing. It was thought to be the usual Russian fire-cracker, a clean propaganda speech.

Mr. Nikita Khrushchev then paid a visit to Los Angeles and Hollywood. He went round the studios in Hollywood, the world's film

capital. Addressing at a banquet there, he said that the disarmament problem must be solved once and for ever. Then he left for San Francisco.

Mr. Nikita Khrushchev said on September 22, 1959 at San Francisco in a dinner meeting arranged in his honour that Russia considered the aspiration of building a Communist Society in the world a "most sacred cause—but the Soviet Union is not going to wage the struggle by force of arms."

Mr. Khrushchev and Mr. Eisenhower discussed world affairs at Camp David in the mountains of Maryland on September 26, 1959. At the conclusion of their talks, a joint communique was issued. They agreed that negotiations on Berlin should be reopened subject to the approval of the other parties directly concerned.

The Soviet Prime Minister declared at Washington on September 28, 1959 on the conclusion of his two-week visit to the United States that there were "no insurmountable obstacles" to the revival of Soviet-American co-operation. He said in a farewell speech before he left for Moscow. "There are many outstanding issues between us, but let us rather not return to the past, but look to the future and do all we can for the future."

Mr. Solomon Bandaranaike: A young man in the yellow robes of a Buddhist monk shot at the Ceylon Prime Minister, Mr. Solomon Bandaranaike, at his residence Rosemead Place on September 25, 1959, dangerously hurting him in the abdomen and hand. A

state of emergency was declared throughout the country soon after the Prime Minister was rushed to the hospital for an emergency operation. He passed away on September 26, 1959. In his death Ceylon has sustained a great loss.

Mr. Vijayananda Dahanayake, Minister for Education, was sworn in as Prime Minister of Ceylon on September 26, 1959.

Space Station: The Soviet Union launched on October 4, 1959 an "automatic inter-planetary station" intended to circle the moon. The space station was carried on a cosmic rocket. The Soviet Union Scientists said that it would take about four days for the station to "boomerang" around the moon and return to the region of the earth, where it would probably become another earth satellite.

General Election in Britain: Mr. Harold Macmillan, the leader of the Tory Party, was once again voted to power. The result of the general election in Britain was announced on October 9, 1959. So Mr. Harold Macmillan became the British Prime Minister with strengthened authority behind him. The Conservative Party won its victory with its old Parliamentary majority almost doubled. It was won mainly on Britain's current atmosphere of prosperity and well-being under the Conservative Government. It was indeed a great setback for Labour. Sir Winston Churchill, former Prime Minister of Britain, and 84-year-old "Bulldog" of the Conservative Party retained his seat in Woodford, Essex.

THE NIZAM'S CITY

by

D. SAMPATH, II B.Sc., BRANCH I.

Hyderabad is among the largest of our cities and by Hyderabad I mean the twin city of Hyderabad-Secunderabad. The approach by train from Kazipet is quite impressive. The Hussain Sagar, a large tank, is skirted by the railway line from Secunderabad, a handsome junction to Hyderabad and at night the lights on the fine drive along its bank offer a remarkable sight.

The city is full of fine buildings which possess a distinctive architectural character of their own. The High Court and the Osmania Hospital buildings are beautiful. So also the University buildings. In some respects Hyderabad is like Bangalore, with roads going up and down to some extent.

Every city has its own things to attract the tourists. We were taken to the Salar Jung Museum, a huge affair to examine which you have to pay Rs. 1-10-0. One of the ancient attendant told us that most of the items there had been gathered by Salar Jung the third and some by his grand fathers. The Jade Room attracts much attention, next only to a clock where the hours are struck by a human figure which struts out for this purpose. These are about seventy rooms to see. I was impressed by the collection of Tippu Sultan's possessions. It is tiresome to go through this museum. Those who do not mind climbing the Charminar are said to be assured a fine view of the city.

We went to Golconda. There we saw the prison where Saint Ramadass is reported to have been imprisoned. I can quite imagine that the view of Hyderabad from its top would be beautiful.

We drove up to Osman Sagar, where a dam has been built across the Musi and from where water is supplied to the city. It tastes well and is distinctly superior to the stuff served out by our corporation taps in Madras.

The most attractive item I saw in Hyderabad was the Ajanta Pavilion. It houses a good idea. The Nizam's Government has done excellent work in preserving and popularising the famous murals in Ajanta.

Hyderabad is a city of cycles reminding, one of New Delhi and Poona. Cycle-rickshaws are remarkably cheap and their drivers notable for their honesty. But we thought that too many people got in together into a rickshaws thus making the driver's life more hard than it should be.

I shall conclude with one odd foot note. The houses in the city bear numbers and areas have names of their own. It is absolutely essential that you should have with you for guide a person, who knows the locality very well. I do not think policemen would be of much use. Nobody pays any attention to them at street crossings.

THIS HAPPENED

by

"CHITTY"

On Saturday, the 1st March, this year I was on the Kodambakkam platform at 5-45 p.m., awaiting my train. Two girls of the same age, sure to be of some college, were waiting for their train, bound for MAM-BALAM.

It was about ten ten minutes for the trains to arrive, and the passengers were strolling this side and that side, just to while away time. So also myself, and those two girls.

One of the girls, holding some magazines in her hand, of which CARAVAN was so prominent, somehow took a fancy to test her weight. With this intention, she got up the machine, and just when it was steady, thrust a one-anna coin into the slot, waiting for the ticket. The ticket did not come out as expected.

A person on the platform remarked "she is too light for the machine to record her weight." At once, a young man replied. "No, that can't be. Even if it is half-a-pound, the machine must show it."

Again the person said, "or perhaps, the machine might be not working." Immediately the active young man replied "that can never be. If it is so, the company ought to put up a board announcing "Machine out of order." Everybody started to disperse, murmuring something of his own about this. And with disgust, the girl too got down after a little while. She lost her one-anna piece, without any hope of regaining it.

Something whispered in my mind: "Just get up on the machine, you have nothing to lose." I did so. To the surprise of all, a ticket fell down in the drum. With great enthusiasm I took it and handed it over to the lady, saying, "Madam, here is your weight. You haven't lost your one-anna."

Both the girls received the ticket with delight, and observed the figures. Ticket No. was 50213. *Weight recorded was 14 stones and 4 Lbs. The girl who tried to find out her weight yelled with wonder, "Ah, fourteen stones! This is not at all my weight!"

Then a wise man on the platform who has been observing the whole affair, turned to me and said, "Oh, you youngman!—This is your weight, not hers." Another man caught the idea and confirmed, "Yes, yes. the ticket came out only when you got up the machine." Everybody burst into hearty laughter. The whole place was filled with joy, at the joke.

The matter did not stop there. Again, the wise man suggested to me, "it is justice that you refund the one-anna to that lady." Accordingly, I took out six naye paise from my pocket and offered that to her. She was not at all inclined to accept it, and she flatly refused to take it. She gave away the ticket to me, which added to my agony.

Casualty, I looked at the figures on the ticket. It was 14 stones and 4 Lbs. I was puzzled. So far, I never weighed more than 100 Lbs. Now, the total weight as per figures on the ticket came to 186 lbs. Simply ridiculous. I worked out the figures in black and white, and showed them to that gentleman who said this weight was mine, explaining to him the facts.

Just then, another gentleman intervened and expressed his opinion like this: "Why you bother Tamby, about this question!—This 186 is the consolidated weight of you both. As you say, we shall take from the total, your weight to be 100 Lbs even now, and if you deduct this from the total, you are getting 86 Lbs. This is evidently the weight of the girl. Ha...ha...ha..."

The Cries of the Disabled

by

M. AMANULLAH KHAN, CLASS III, B.Sc., BRANCH I.

It was a fine morning. I started from home after a light breakfast, to go round the town to have a look at various kinds of people. I came across many busy, well-to-do people who engaged themselves in their respective jobs, either with the purpose of earning their livelihood or with the intention of growing richer. I met also lazy young beggars who made the least effort to earn their bread. The most interesting characters or personalities which attracted me more were the disabled persons who could neither indulge in the daily routine of work nor attend any functions. I felt very sorry for them and my heart was very much touched by their divine curse. I had a sense of sympathy towards them. As soon as I looked at them I began to think of their cravings in this restless world. My mind began to measure their thoughts and longings in their daily life.

I was then walking along the road side of a small garden which was smiling with the fresh blossoms and pleasing every passer-by with their sweet fragrance. The orange rays from the morning sun were playing on the smiling flowers and bedewed grass. Suddenly I came across a blind man in rags, sitting under the shelter of a green tree. We forget our sorrows and troubles by looking at beautiful objects and natural scenery. We felt delighted at the sight of all sorts of flowers and bowers. We saw the tall and beautiful buildings and the beautiful sky. What is the case with the blind man? What does he see throughout his life? Darkness! Alas! he knows nothing but darkness! He hears men talking about the lovely colours of the rainbow and the beauty of the flowers. We could not describe his feelings in words when he hears such conversations. He cries, "My God! What harm have I done! I never intended any harm to anybody! In spite of my innocence, why

have you made me blind and left me in the world of darkness as a toy of fate? It would have been better if you, had not let me live in this world at all! What is the use of my living? Nobody benefits out of my life. I could feel the objects in my world of darkness, where I am not blessed with the sense of sight! I do not know how the world is? I could feel the heavenly showers but could not see the charm of the rains or the lovely colours of the rainbow. O! my god! I prefer not to live in this world! Take my breath away and allow me to be peaceful for ever!" This is how the blind man would have cried at his inability to see the beautiful things of the world and to enjoy through the sense of sight.

Then I came across an interesting conversation. A gentleman was talking loudly to another with signs and gestures and I came to know that the person was deaf. This is another kind of disabled creation of God, where a person could not hear his fellow beings. He could not enjoy the blessings of music, cheerful songs and rapturous sounds of birds. He goes to a theatre where musical performance goes on and he looks at men nodding their heads as the music is going on. He looks at the pleasure of the people, realises his defect and cries, "what sin have I committed for which I am suffering now? I could not hear music, which is said to be melodious, heart-rending and rapturous and which makes men forget all their troubles. How powerful it should be to make them forget everything around. O! God! bless forth all with the sense of hearing and allow them to enjoy the pleasures of music and do not create deaf people anymore!". Then he goes on crying at his disability and longs to have the sense of hearing.

I was then passing through a street where young children were playing. Beside a house

there was a young lame boy looking pitifully at the children playing. He desired and craved to play but he could not. He cries and tears emerge from his heart. He cries, "My God! Why have you not blessed me with legs, so that I could join these boys and play and be happy with them. You have left me to live such a barren and unwanted life. Why should I live in this world without any use?". This is how he would have cried seeing the boys play.

Then I came across a dumb person making peculiar noises and gestures in order to express his ideas. I pitied him. He will be seeing daily, innumerable persons talking and singing. But he could not indulge in such sort of things. I thought of his desires and longings. Perhaps such persons may be talented, but the only way for them to express their ideas, is by writing. Mankind is not blessed with hearing the speeches of such persons since they are dumb. He feels, "Alas! I can not talk with my fellow beings! This is my curse! How can I express my feelings? O God! Why have you created such a dumb man who cannot express his ideas and feelings? Why have you let me live in this

world deprived of the capacity for talk? I see men talking on great platforms before huge crowds and being applauded for their speech. Men sing on the stage and make listeners happy by their song. But what is the case with me? Alas! I could not open my mouth to talk or sing. May not I have become a great speaker or singer if I had the blessing of speech." This is how he goes on crying pitifully within himself.

While I was going round, I came across a number of, disabled persons. At the very sight of them my heart was moved to pity and I felt very sorry for them. We find some of them to be gifted. Men who are not disabled waste their valuable time by indulging in vain talk and worthless actions. They practically waste their life! Without wasting time all of us should work for the betterment of the world and humanity. We should make up our mind that we should live more for others than for ourselves, with the intention of serving others. Service should be our main ideal. We should serve poor disabled men and make them happy. If we cultivate such a kind of mentality, there is a bright future before us.

A Little Knowledge is a Dangerous Thing

by

R. N. SUNEER, P.U.C. GROUP E.

**"A little knowledge is a dangerous thing
Drink deep or taste not the pierian spring."**

The same idea is echoed in the vernacular proverb which says that empty vessels make the most noise. Knowledge should be attained at any cost ; but a little knowledge, has the dangerous tendency of turning the head of its owner. It is not here a case of 'something' being better than nothing. That is what is implied in the statement that a little knowledge is a dangerous thing.

There is certainly a great deal of truth in the statement. It is quite common to see persons with shallow attainments parading their knowledge and trying to make others believe that they are really learned. This leads them to treat others with scant respect and look down upon those of lesser attainments. They want that others should respect and admire them and, if these are not forth-

coming, they get disappointed. All this finally makes them unpopular, if not hated.

This tendency to parade a little knowledge, is noticeable to a greater extent in uncultured people. Having been so long unacquainted with learning and education as such, they are flushed by their first contact with them, and immediatly, their heads get swollen. They put on airs and think it beneath their dignity to pursue their former occupations. They behave very much like the jackdaw who tried to pass for a peacock.

Some do not agree with the, idea that a little knowledge is a dangerous thing ; they say that it might, on the otherhand, act as a spur to further effort and attainment of more knowledge, where this desire is manifest, the knowledge has been rightly used. But a study of human nature reveals that this type of person is indeed, rare.

HOBBIES

by

P. SUNDARA RAJ, P.U.C. E.

Hobbies are interesting pursuits which men take up for diversion or amusement. A hobby is a favourite occupation that is not one's main business. We need some diversion to which we can escape from the monotony of our work. It is a pleasurable pastime in which a person indulges at his leisure. There one proverb, and old saying "All work and no play makes Jack a dull boy."

Hobbies are of very great value to a man. A person pursuing hobbies has no time to waste and also is not attracted by any pleasures that waste his energy and money. Every boy or girl has a natural desire to make things with his or her hands. A hobby serves not only as a pleasant pastime but also helps to keep ourselves out of bad company, bad habits and bad thoughts. Hobbies were determined by circumstances. Hobbies like stamp-collecting, making fancy articles, bee-keeping, rabbit-rearing, collecting coins of different countries and gardening, can be pursued as paying diversions.

Hobbies that are useful and fruitful can be cultivated by all people. Hobbies are of many kinds. The most useful and fruitful hobby is gardening. It is very convenient for retired people either rich or poor. By this we can get money from the sale of the garden produce. It is an exercise to the body. We can breathe good air in the open space. Watering the plants, digging the earth and sowing the seeds is not only an occupation

but also a good exercise to the body. Hobbies like collecting plants, collecting birds' eggs, bee-keeping and hare-rearing are also fruitful hobbies.

Salar Jung, a great man in India, liked to collect valuable things. He had a remarkable collection such as valuable ornaments, books and so many articles. He collected various kinds of walking sticks, more than two thousand. Now these are kept in a museum named Salar Jung Museum which is located in Hyderabad. Sir Winston Churchill likes brick-laying. He is an expert in cooking and painting. Mr. Neville Chamberlain's hobby was angling and needle-work. During the time of the First World War the famous Watson brothers knitted a pair of socks, while the rest of the members were engaged in political discussions.

Henry Huntington was a great person and also one of the millionaires in California in those days. He had a wonderful collection—eighteenth century paintings, varied kinds of snuff boxes used by great persons, furniture, carpets, great persons' letters and nearly twelve lakhs of books. After his death, the state has taken over all that and opened a library named Henry Huntington Library. The library extends over 200 acres.

So every one must cultivate a hobby but take care not to spend time and money on it blindly.

நான் உன்னைக் காதலிக்கின்றேன்

by

K. SUBRAMANIAN, III B.A., BRANCH IV.

விரிந்து பரந்த வானம், அதிலே அலைந்து திரிந்து வந்த மேகங்கள் பொதுக்கூட்டம் நடத்திக்கொண்டிருந்தன. அக்கூட்டத்துள் எங்கோ ஓரிடத்தில் கரந்து நின்றது நிலவு. விரைந்து வந்த வெங்கால் மறைத்து நின்ற முகிற்கூட்டத்தை ஏந்தி நெடுவழிச் சென்றது. வெண்ணிலவைத் தடுப்பாரில்லை. அந்த வெள்ளிக் குடத்திலிருந்து ஒளிப்பால் பூமியில் ஊற்றப்பட்டது; பூமியிலே பால் பெருக்கு. அந்த ஒளி வெள்ளத்தில் ஒரு மாஞ்சோலை மிதந்து கொண்டிருந்தது. தென்னவன் நாட்டுச் சந்தை மணக்காற்று அம்மாஞ்சோலையினுள் புகுந்து உலர்ந்த இலைகளுடன் உரையாடிக்கொண்டிருந்தது. அங்கே வேரறுந்த மாமரமொன்று மண்மீது படுத்துக் கிடந்தது. அதற்கடுத்து ஒருதென்னைமரம் நின்று கொண்டு, தூரத்திலிருந்த பனைமரத்துடன் 'சலசல' என்று பேசிக்கொண்டிருந்தது. அம்மரத்தின் அடியில் இரண்டு உருவங்கள்: ஒன்று ஆண், மற்றது பெண். இலைகளுடன் உரையாடிக்கொண்டிருந்த தென்றல், என்ன நினைத்ததோ, ஓடிச்சென்று இரவுராணி மலர்களின் மணத்தை மொண்டுவந்து அவர்கள்மேல் தெளித்துச் சென்றது.

அவன் பேசினான்: "மணச்செல்வி! உண்மையாகவே நீ என்னைக் காதலிக்கின்றாயா?" "என்ன இன்பச்சூழல்-இந்நேரம் ... அறியாது அசட்டுத்தனமான கேள்வி கேட்கின்றானே! முட்டாள்" என்று தென்றல் இலைகளிடம் கோபித்துக்கொண்டது.

"கவி பாடும் பாவாணராகிய உம்மை நான் பொய்யாகவும் காதலிக்க முடியுமா?"

—இது அவள். தென்னங் கூந்தல் பனை மரத்துடன் பேசி ஓய்ந்து நின்றுவிட்டது.

"என் கவிபாடும் திறனுக்காகக் காதல் கொண்ட நீ நான் அத்திறமையை இழந்தால்...?"

"கடல் வற்றுமா?"

"இல்லை இழந்தால்..." குரல் அழுத்தமாக இருந்தது.

"தங்கள் பருவயிரத் தோள்பற்றிப் பரந்த மார்பில் சாய்ந்து நீர் கூறிய பாடல்களை உம்செவியில் மெல்ல இசைப்பேன்."

"பருவயிரத்தோளும் பரந்த மார்பும் கூனிக் குறுகிவிட்டால்...?"

"அத்தான்.....நான் உம் கவித் திறனையோ உம் உடலழகையோ காதலிக்கவில்லை. உம்மைக் காதலிக்கின்றேன்-அதியனைக் காதலிக்கின்றேன்"

"மணச்செல்வி! கோபித்துக்கொண்டாயா? ம்.....? வினையாட்டுக்கு வினவினேன்."

தென்றல் அவள் கூந்தலுக்குள் புகுந்து வினையாட ஆரம்பித்தது.

"அழகிய கருவண்டன்ன நின் கூந்தல் ..."

"நாரையின் உட்சிறகு போன்றாகிவிடலாம்"

"ஒளி வீசுகின்ற நின்னுடைய வேற்கண்கள் என்னை..."

"ஒளி யிழக்கக் கை கோற்கண்ணியும் பெறலாம்"

"வானத்தை நோக்கி இருக்கும் இவ்விரு அந்திக் கமலங்கள்..."

"தரையையும் நோக்கலாம்"

"மணச்செல்வி என் பேச்சுப் பிடிக்கவில்லை என்றால் பேசாமலிரேன். என்னவோ நிலையாமை பேசுகிறாயே."

“நீங்கள் என் அழகைக் காதலிக்கிறீர்கள். அது அழிந்துவிடலாம்.”

“உன்னுடைய என்னைக் கவர்ந்ததென்ன டோவா உன்மை; ஆனால் நான் உன் அழகைக் காதலிக்கவில்லை. மணச்செல்வியைக்காதலிக்கின்றேன் - உன்னைக் காதலிக்கின்றேன்; இஃது உன்மை.”

“களுக்”

ஏன் அவள் சிரிக்கின்றாள் என்று இலைகள் தென்றலைக்கேட்டன. தென்னை மீண்டும் சலசலக்க வாரம்பித்தது.

“மணச்செல்வி உன் நெற்றியில் என்ன அது? அட்டே பசலை பாய்கிற தே! அருகே வா! நீக்கிவிடுகிறேன் அதை!”

திடீரென்று வீசியகாற்று மேகங்களை நிலவுக்கு முன்னே கொண்டுவந்து போட்டுவிட்டுப் பின்னோக்கிப் போய்விட்டது. தென்றல் இலைகளுக்கு அடியில் ஒளிந்துகொண்டது. மாஞ்சோலையில்... இருநாசிகளும் வெப்பக்காற்றைச் சுவாசித்துக்கொண்டிருந்தன.

பிரிவுத் துன்பம்

by

MOHAMMED RASHEETH, III B So., BRANCH IV.

தெய்தல் நிலை அழகி அவள். அந்நிலை ஒழுக்கத்திற்குரிய எல்லா நற்பண்புகளும் ஒருங்கே அமையப்பெற்றவள். ஒருநாள் அக்கயமலர்க்கண்ணி, ஆங்காங்கே தாழைத் தோட்டங்கள் மிக்க சோலை யின்கண் இளநாரைகளின் இனங்கள் ஒலிக்கும் ஒலியோடும், உடனுக்குடன் மணலின்கண் தோன்றி மறையும் இள நண்டுகள் மிக்க பெருந்திரை முழக்கத் தோடும் உள்ள இயற்கை எழில் அமைந்த கடற்கரையில் மையற் பெண்டிர் பல ரோடு ஆங்கமைந்த சோலையின்கண் விளையாடிக்கொண் டிருந்தாள். அப் போது சந்தனத்தைப் பூசி, உயர்வாகப் பூண்ட பூமாலையை அணிந்த அகன்ற மார்பும், உயர்ந்து பருத்த தோள்களும் உடைய ஆணைகள் ஒருவன் தேரேறி வந்து அவள் உள்ளம் கவர்ந்து சென்றான். இருவர்க்கும் இடையே பிரிவு, அது செய்த துன்பம், பெரு நாணம் அணிந்த சிறிய மெத்தென்ற சாயலை உடைய அத்தலைமகள் தனது மாண்ட நலம் கெட ஏங்கி அழகிய குளிரந்த கண் கலங்கினாள்; ஒளி வீசுகின்ற அவள் சிறு துதல் ஒளி இழந்து பசலை பாய்ந்தது; வாள்போலும் வீச்சினைபுடைய அவள் கண்கள் உறையிலிட்ட வாளால் ஒளி மறைந்து போயின; அவள் வாய் பால் உண்ணாதாயிற்று; கை பந்தாடல் ஒழிந்தது; முன்கைவளைகள் கழன்று வீழ்ந்தன; மாமை அழிந்தது. இருளைக்குற்ற இவ்வின்னல்கள் கண்டு அத்தலைவியின் உயிர்த்தோழி ஒருத்தி அவளது நோய் நாடி அதன் முதல்நாடி அதுதணிக்கும் வழியாக செவிலித்தாய்பால் சென்று அறத்தொடு நின்றாள்.

தலைவியின் துயர் துடைக்க வேண்டுமாயின் அக்கயமலர்க் கண்ணியையும் அக்காதற் கொழுநனையும் சேர்த்து வைத்தல் வேண்டும். அதற்கானவழி திருமணம் ஒன்றுதான். இதனை நேரிடையாக நற்றாய்க்குச் சொல்லின் ஆகா

தென்பதை உணர்ந்த தோழி செவிலித்தாயை நண்ணினாள். ‘அன்னாய்’ யான் சொல்லும் சொற்களுக்குச் சிறிது செவிலி மடுப்பாயாக என்று இறைஞ்சினாள். செவிலித்தாயும் அவளது வேண்டுகோளுக்குச் செவிலி மடுத்தாள் நின்றாள். தோழியும் தன் பேச்சைத் தொடர்ந்தாள்.

அன்னாய்! அன்னாய்!!

என மெல்ல விளித்தாள்.

‘யாம் ஒருநாள் மாலேபோலத் தொடர்ந்த தோழிக் கூட்டத்தோடு கடலில் ஒருங்கே ஆடியும், கடற்கரைச் சோலைக்கண்ணே சிற்றில்கோலியும், சிறுசோறு ஆக்கியும் வருந்திய வருத்தம் தீருமாறு சிறிது இளைப்பாறிய வண்ணம் இருந்தோம். ஒரு தலைமகள் அப்போது எங்களை அணுகி, ‘மெத்தென்ற மூங்கில் போன்ற தோளையும், மடப்பத்தைபு முற்ற நற்குணமுடையீரே! பசுவும் ஒளி மழுங்கிற்று; தளர்ச்சி மிகவுமுடையேன்; இம்மெல்லிய இலைப் பரப்பின் நீவீர் ஆக்கிய சிறு சோற்றை விருந்துண்டு, இக்கல்லென்னும் ஒலியை உடைய சிறிய குடியில் யானும் தங்கினால் என்ன குறை?’ என மொழிந்தான். அவனைக்கண்டு கவிழ்ந்த முகமுடையோராய் யாம் பக்கத்தே சேர்ந்திருந்து இழுமென்னும் ஒலியுடன், ‘இச்சோறு முதலியன நமக்குத் தகுதியுடையவல்ல; இழந்த கொழுமீன் உணவாகும்’ என்று மொழிந்தோம் என்று கூறினாள்.

மேலும் தோழி தன் பேச்சைத் தொடர்ந்தாள். அதற்கு அத்தலைமகள், ‘அசையும் நெடிய கொடியோடு தோன்றுகின்றனவான மரக்கலங்களைக் காணமாட்டோமோ?’ எனச் சொல்லிக்கொண்டு, எமது சிற்றில் சிறுசோறு முதலியவற்றைக் காலாற்சிதைத்துவிட்டுக் குறும்புச் சிரிப்போடு, ஆண்டு நின்றும் நில்லாது பெயர்ந்த ஆயத்தார் பலருள்ளும் என்னையே குறித்த பார்வையோடு ‘நன்னுதால்! யான் செல்லவா?’ என்று

நெஞ்சம் அழியுமாறு அத்தலைமகன் கூறினான். அதற்கு யான் “போவீராக” என்றுகூறியும் அவன் இரக்கத்தோன்றப் பார்த்து நின்றவாறே தன்னுடைய நெடிய தேரின் கொடிஞ்சியைப் பற்றிய வண்ணம் என்னையே நோக்கினின்று. அவன் அவ்வாறு நோக்கியது, அவன் பால் எனக்கு முன்னர்ப்பிறந்த அருள் பின்னர் அவனது குறும்புச்செய்கையால் ஒழிந்ததேனும் மற்று மொருகால் அது பிறத்தலுங் கூடும் என்று அவன் கருதினான் போலும்! அதனை அன்னை அறிவாளாயினும் அறிக; அவர் கூறும் வாயினையும் அம்மென்னும் ஒலியினையு முடைய சேரிப் பெண்டிர் கேட்பினும் கேட்க, இதனைத்தவிரப் பிறிதொன்றும் இன்மை நீ அறியுமாறு வளைந்த சுழியை உடைய புகாரிடத்துள்ள தெய்வத்தை நோக்கி அதன் முன் நீ தெளியும் வண்ணம் உனக்குச் சூள் கூறித்தருவேன்,” என்று தோழி செவிலித்தாய்க்கு அறத் தொடு நின்றாள்.

இன்னணம் தோழி செவிலித்தாயிடம் மெல்ல, ஆனால் உறுதியோடு வேண்டினாள். அவளின் உட்கருத்துத் தலைவி சேர்ப்பன்பால் காதல்கொண்டாள் என்பது. அக்காதலைப் பூர்த்தி செய்துவைத்தலே செவிலித்தாயின் கடன் என நயம்பட உணர்த்துகின்றாள்.

இங்ஙனம் தோழி அறிவொடு அறத் தொடு நின்ற காட்சியினைப் போந்தைப் பசிலயார் என்னும் புலவர் அகநானூற்றில் வெகு அழகாகத் திறம்படப் பாடியுள்ளார். இதோ! அப்பாடல் காண்க:

அன்னை யறியினு மறித வலர்வா
யம்மென் சேரி கேட்டினுங் கேட்க
பிறிதொன் நிண்மை யீறியக் கூறித்
கொடுஞ்சுழிப் புகாஅர்த் தெய்வ நோக்கித்
கடுஞ்சுடருருவ னினக்கே காணற்
றொடலை யாயமொடு கடலுட னாடியுஞ்
சிற்றி விழைத்துஞ் சிறுசோறு குவைவியும்
வருந்திய வருத்தத் தீர யாஞ்சிறி
திருந்தன மாக வெய்த வந்து
தடமென் பணைத்தோண் மடநல் வீரே
யெல்லு மெல்லின் ரசையுடிக வுடையேன்
மெல்லிலைப் பரப்பின் விருந்துண் டியானுமித்
கல்லென் சிறுகுடித் தங்கின்மற் றெவனே
வெனமொழிந் தனனே யொருவ னவற்கண்
டிறைஞ்சிய முகத்தெத் புறஞ்சேர்பு பொருந்தி
யிவைவறுமக் குரிய வல்ல விழிந்த
கொழுமின் வல்செ யென்றன பிழாமென
நெடுங்கொடி நுடங்கு நாவாய் தோன்றுவ
காண மோவெனக் காலிற் சிவையா
நில்லாது பெயர்ந்த பல்லோ ருள்ளு
மென்னே குறித்த நோக்கமொடு நன்னுதா
லொழிகோ யானென வழிதகக் கூறி
யான்பெயர் தென்ன நோக்கித் தான்ற
னெடுந்தேர்த் கொடிஞ்சி பற்றி
நின்றோன் போலு மென்றுமென் மகட்கே.

முத்து

by

பெ. அ. கிருபாகரன், முதல் பி.எஸ்ஸி., பிரிவு ஊ.

இயற்கையில் நமது கண்களுக்குத் தெரியாத வகையில் மறைந்திருக்கும் செல்வங்கள் கணக்கில் அடங்கா. இச் செல்வத்தைத்தேடி நன்முறையில் பயன்படுத்த மாந்தர் முயலவேண்டும். தாமரை சேற்றில் பிறந்ததனால் நாம் அதை ஒதுக்கிவிடுவதில்லை. அதுபோலவே நல்லவர் கீழ்க்குலத்தில் தோன்றினும், அவர் பிறந்த இடம் நோக்கி வெறுக்கப்படமாட்டார்கள். அழகிற்கு மெருகுதரும் முத்தம் சிப்பியின் வயிற்றின்னிறே பிறக்கின்றது. சிப்பியின் கீழ்மையை எண்ணி எவரும் முத்தைப் புறக்கணிப்பதில்லை. இயற்கையில் மறைந்து கிடக்கும் இம் முத்துச் செல்வத்தை எங்கிருந்து, எவ்வாறு பெறுவது என்பது பற்றி அறிவதே இக்கட்டுரையின் குறிக்கோளாகும்.

சங்ககாலச் சான்றோர்கள் புரவலனைப் புகழும்படித்து, அன்னவனை வெண்முத்துக்கு ஒப்பிடுவர். இதனால் முத்தின் சிறப்பு அறியப்பெறுகின்றோம். மற்றும் குறுந்தொகை, முத்தொள்ளாயிரம் போன்ற நூல்களும் முத்தின் சிறப்பினைப் பற்றிக் கூறுகின்றன. ஆயின் இவ்வகையான சீரிய முத்து எங்குக் காணப்படுகின்றது? கொற்கைத்துறையில் இவ்வகை வெண்முத்துக்கள், பூவின் மொட்டு விழுந்து பரந்து காணப்படுவது போல் காணப்படுகின்றன. கொற்கைக் கடலில் இவ்வெண் முத்துக்கள் மிகுந்த ஆழத்தில் காணக்கிடக்கின்றன. கொற்கையின் காவலனை பாண்டிய மன்னன் முத்துடைக் கொற்கைப் பாண்டியன் எனச் சிறப்புப் பெயர் பெற்றான்.

கொற்கைத் துறையை யடுத்த தூத்துக்குடியில் முத்துமட்டுமன்றி, முத்தை ஈன் நெடுக்கும் சிப்பியும் விற்கப்பெறுகின்றன. முத்தும் சிப்பியும் கிடைக்கும் இடம் முத்துச்சலாபத்துறை எனப்படும். அவண், முத்து, நித்திலம், சிப்பி ஆகியவற்றினைப் பேரம் பேசி மொத்தமாக

விற்கும் சந்தை பலஉள. இம்முத்துச் சலாபத்துறையைச் சீரிய முறையில் விளங்கச் செய்வது கீழ்த் தூத்துக்குடியிலுள்ள மீன் இலாகா நிலையமாகும். இவ்விலாகா முத்தெடுக்கும் துறையில் மிகுந்த கண்காணிப்புக் கொண்டுள்ளது. முத்தெடுக்கும் பருவகாலமும், முத்து எடுக்கும் இடமும் அறிந்து, பல்வேறு இடங்களிலுள்ள கடல் மூழ்கும் பழக்கமுள்ள குளியாட்களுக்கு அது தெரியப்படுத்தப்படுகிறது. அதிகாலையில் அதிகாரிகள் பலர் இக்குளியாட்களைத் தட்டி எழுப்பி, அன்னவருக்கு உற்சாகமூட்டி, அன்று முத்தெடுப்பதற்கான இடமும், வகையும் குறித்த சீட்டுகளைக் கொடுக்கின்றனர். இவர்களில் சுமார் பதின்மர், இவர்களுக்கு உதவிபுரியும் தோடைகள் என்பவரோடு சலதி நோக்கிச் செல்கின்றனர். காற்றில்லாத இடத்தில், நிலையத்தைச் சேர்ந்த மூன்று இயந்திரக் கப்பல்கள் படகுகளை இழுத்துச் செல்கின்றன. துறையில் முத்துச் சிப்பிகள் இருக்கும் இடங்களைக் கொடிகள் காட்டுகின்றன. இவர்கள் தங்களுக்கு அன்று கொடுக்கப்பட்ட சீட்டின் நிறத்திற் கேற்பக் கொடிகளைக் கண்டவுடன், சிற்றூடை உடுத்திக் காதிற் எண்ணெய் தோய்த்த பஞ்சினை வைத்துக்கொண்டு, வாயில் மிளகும், சுக்கும் அடக்கிக்கொண்டு அரையில் வலைப்பை ஒன்றோடு கடலில் மூழ்க ஆயத்தமாகின்றனர். குறிப்பிட்ட நேரத்தில் கலத்தினின்று ஊதொலி கேட்டதும் கயிற்றோடு இணைத்த கல்லைப்பற்றிக் கடலில் மூழ்குகின்றனர். ஆழ்கடலை அடைந்த குளியாட்கள் அங்குப் பாதையில் பற்றி நிற்கும் சிப்பிகளைத் துழாவி எடுக்கின்றனர். அரையில் உள்ள பையைச் சிப்பிகளால் நிரப்புகின்றனர். பின்னர் தமது கரங்களால் அழுத்தி மேல் வருகின்றனர். இவர்களால் விடப்பட்ட கல்லைத் தோடைகள் என்போர் மேலுக்கு இழுத்து வைத்துக்கொண்டு காத்திருப்பர். குளியாட்கள்

சிப்பிகளைக் கொடுத்துவிட்டுச் சில மணி நேரம் நின்று பின்னும் மூழ்க முயல்வர். வெண் முத்துக்களை மேலே கொண்டு வரும் குளியாட்களுக்கு ஏதேனும் துன்பம் நேருமாயின் அன்னவருக்கு முதலுதவி கொடுக்கப்படும். இவ்வாறு இவர்கள் குளித்தெடுத்த சிப்பிகளின் மூன்றில் இரண்டு பங்கு அரசாங்கத்திற்கு உரிமையாகிறது. மற்றொரு பங்கு மூழ்கி எடுத்தகுளியாட்களுக்கு உரியதாகும். அவர் தமக்குரியனவற்றைக் கரைக்குக் கொணர்ந்து, அச்சிப்பிகளைச் சந்தையில் விற்பர்.

அரசாங்கத்திற்குச் சொந்தமான சிப்பிகளைக் கோட்டை அறையில் ஆயிரக் கணக்கில் ஏலம் விடுகின்றனர். அன்னிய நாட்டிலிருந்து வந்திருக்கும் முத்து வணிகர்களும் இச்சிப்பிகளை ஏலம் எடுக்கின்றனர். வியாபாரிகளுக்கு ஏலம் எடுத்த சிப்பியினின்று முத்தை எடுப்பதற்கான வசதிக்காக, அரசாங்கத்தாராலேயே ஒரு தனி விடுதி கட்டித் தரப்படுகின்றது. அவ்விடுதியில் கட்டப்பட்டிருக்கும் தொட்டிகளில், முத்துச் சிப்பிகளை ஏலம் எடுத்தோர், அச்சிப்பிகளை அழுக வைத்து, அழுகிய நீரை மாற்றி, அடியில் படையும் முத்துக்களை எடுப்பர்.

நிலையம், பருவகால ஆரம்பத்தில் சுமார் அறுபதிற்கு மேற்பட்ட பாறைகளில் இருந்து சிப்பிகள் எடுத்துவந்து சோதனை செய்கின்றது. இம் முத்துச் சிப்பி குறிப்பிட்ட வெப்பமும், வேதிப் பொருள்களின்

கலப்பும் உடைய கடல் நீரில் காண்கின்றது. வரைந்த நீள்கோட்டின் நிற்கும் முக்கால் வட்டவடிவமுடைய ஈரடைப் பாண்களைக் கொண்ட இச்சிப்பி, இதன் அடியில் காணப்படும், பச்சை நிறமுடைய மயிரிழைகளால் பாறையைப் பற்றி நீருக்கும் போக்கிற்கும் விடாது நிற்கிறது. அடைப்பான்களைத் திறந்து நிற்கும் சிப்பியின் விசிறிமடிப்புப் போன்ற உறுப்பு களில் குறிப்பாகச் சிலவிடத்தும், பொதுவாகப் பலவிடத்தும் ஏதேனும் வேற்றுப் பொருள் செல்லுமாயின் அவ்விடத்தில் ஓர் நீர் சுரப்பதால் அந்நீரை அப்பொருளைச் சுற்றி நின்று உறைந்து முத்தாகின்றது என்பது ஆராய்ச்சியாளரின் துணிவு. ஆராய்ச்சியாளர்கள், சிப்பிகாணு மிடங்களிலுள்ள கடல் நீரின் வேதிப் பொருட் கலப்பையும் அறிந்து வருகின்றர். இதன் பயனாகச் செயற்கை முத்தை உண்டாக்கலாம் என்பது அன்னவர் கருத்து.

முத்துக்கள் அதனதன் கணபரிமாணத்திற்கும், வடிவிற்கும், நிறத்திற்கும் ஏற்ப மதிப்புப் பெறுகின்றன. இயற்கையில் திடைக்கும் இச்செல்வமாகிய முத்து மாந்தரினத்தால் நன்கு மதிக்கப்படுவதால் அரசாங்கத்தார், இம்முத்துச்சலாபத்துறையில் நன்கு கண்காணிப்புக் கொண்டுள்ளனர். இம்முத்துச்சலாபத்துறை நன்கு முன்னேற வேண்டுதற்கான முறைகளை அரசாங்கத்தார் கையாண்டும் வருகின்றனர்.

“கல்லூரிகளில் தமிழைப் போதனை மொழியாக்குதல்”

by

அ. தருமாசன், II B.A., IV-B.

வாழ்க்கை செவ்வனே நடத்த மொழி தேவைப்பட்டது. காலம்செல்லச் செல்ல மொழியானது வளர்ச்சி அடைந்து வந்தது. சூழ்நிலைக்கும், காலத்திற்கும் ஏற்ப மொழிகள் பலமாறுதல்கள் அடைந்து வந்தன. இப்பரந்த உலகில் பற்பல மொழிகள் தோன்றின. அந்தந்த வட்டாரத்தில், அவரவர்களின் இனத்தாரால் பேசப்படுகின்ற மொழி தாய்மொழி எனவும், அந்நாட்டைத் தாயகம் எனவும் அழைக்கலாயினர். மொழி உணர்ச்சி காரணமாக இனம் தோன்றியது. எனவே மொழி, இனம், நாடு இவைகள் ஒன்றையொன்று தன்னை வளர்த்துக்கொள்ள வழிவகைகள் ஏற்பட்டன.

ஒரு மொழி உன்னத நிலையில் இருக்கக் காண்கிறோம் எனின், அம்மொழி, வழிவகையோடு அமைந்த இலக்கணத்தையும், வளமான கருத்துக்கள் கொண்ட இலக்கிய நயத்தையும், கற்பனையோடு கலந்த கவிகளின் ஆற்றலையும், கண்டவர்கள் களிப்புறும் தன்மையுடன் கூடிய கவிதைகளையும், மக்கள் நன்முறையில் வாழ்வதற்கு வேண்டிய அறிவுரைகளைக் கொண்ட நூல்களையும், பல்கலை மொழிகளை ஈன்றெடுத்த பெருமையினையும், உலகியல், அறிவியல், வானவியல், நுணர்வியல், கலைவியல், தாவரவியல், பொருளியல், உளவியல் முதலியவைகளில் பற்பல நூல்களையும் கொண்டு விளங்கவேண்டும். இம் முறையில் இன்றைய உலகில், ஆங்கிலம் மிக்க சிறப்புடன் ஓங்கி, உலகமொழியாக இருக்கும் நிலையைக் காண்கின்றோம். ஒவ்வொரு நாட்டினரும், தத்தம் தாய்மொழியை இவ்வலகில் பரப்புதற்கு வேண்டிய வழிவகைகளைச் செய்து வருகின்றனர்.

நம் தமிழ் கல்தோன்றி, மண் தோன்றக் காலத்தே தோன்றிய மூத்த பெரும் மொழி. நம்மொழி உயர்தனிச் செம்மொழி. இலக்கண இலக்கியச் செறிவுடை

யது. பழம் பெரும் காலந்தொட்டு எழில் குன்றாது இயங்கி வருவது. உள்ளக் கருத்தை ஒலிக்குறிப்பினால் உணர்த்தத் தொடங்கிய காலமுதல் இயற்கையோடு இயைந்து வளர்ந்து வருவது. சங்க மிருந்து போற்றிக் காப்பாற்றப்பட்டு, மூவேந்தர்களால் வளர்க்கப்பட்டு வந்தது. இதனுடன் தோன்றிய ஏனைய மொழிகள் ஒழிந்து போகவும், இஃது ஒன்று மட்டுமே இதுகாறும் உயிருடன் நின்று நிலவும் வெற்றியமைந்தது என்று மொழிநூல் வல்லுநர் பலராலும் போற்றப்பட்டு வருவது.

உலகில் வாழ்மக்கள் அனைவருக்கும் பயன்படும் பொதுமறையாகும்வள்ளுவன் தன் குறள். பண்டைக்காலத்தில் திறம்பட அரசு நடத்தியும் அயல் நாடுகளிலெல்லாம் தன் புகழைப் பரப்பியும், அரசியலிலும், வாணிகத்திலும், நாகரிகத்திலும் தலை சிறந்த நாடு தமிழ்நாடு என வரலாற்றின் மூலம் அறிகின்றோம். வேறு எம்மொழிக்கும் இல்லாத சிறப்பியல்புகள் பண்டைக் காலத்திலிருந்தே தமிழ் மொழி பெற்றிருக்கத் தன்மையைக் காண்கின்றோம். திணையியல் என்பது எம்மொழியிலும் காணக்கிடையாத அரும் பெரும் பொக்கிஷம். எனவே, தமிழ் மக்கள் பண்டைக் காலத்திலேயே, வானவியல், அறிவியல், வணிகவியல், உலகியல், நுணர்வியல், தாவரவியல், உளவியல் முதலியவைகளில் நல்ல தேர்ச்சியும், அனுபவமும் பெற்றிருந்தனர். மற்றும் மெய்யுணர்வு துட்பங்களும், உலகுயிர் இறை இயல்புகளும் ஐயத்திற்கு இடமின்றி அறிந்து வாழ்ந்தனர்.

இவ்வளவு சிறப்பியல்புகள் பெற்றிருந்தும், நம் மொழி அரசியலில் ஆட்சி மொழியாகவும், கல்லூரிகளில் போதனை மொழியாகவும் இல்லாமலிருந்ததன் காரணம் அன்னிய மொழி ஆட்சி செய்த தன் நிலைமையே. தமிழ்மொழி, அரசியல் மொழியாவதற்கு வேண்டிய தகு

தீயும், திறமையும் பெற்றிருக்க வில்லை எனக்கூறினர் ஒரு சாரார். அவர்களால் கூறப்பட்ட வாதம். இன்றுள்ள ஆங்கிலச் சொற்கள் தமிழக மக்களின் அரசியல், வாணிகம், கல்வி, நடவடிக்கைகளில் மிகவும் பதிந்துவிட்டன எனக் கூறுதலே யாகும். இன்றைய நிலையில் தாய்மொழி ஆட்சி மொழியாக்கப்பட்டு இருப்பதைக் காணும்பொழுது அகமகிழ்கிறோம். அதற்கு இன்றியமையாத தேவைகளைச் செய்து தருகின்றனர் அறிவுடைய பெரியோர். ஆனால் ஒரு சிலர் கல்லூரிகளில் தமிழைப் போதனை மொழியாக்குவதன் மூலம் பல துன்பங்கள் ஏற்படும் என்கின்றனர். அவர்கள் கூறுவதெல்லாம் தமிழில் ஆங்கிலச் சொற்களுக்கு ஏற்ற கலைச் சொற்கள் இல்லை என்பதேயாகும்.

செயற்கரிய திறன்களையும், செறிவையும், எல்லா வளங்களையும் பெற்ற தமிழ் மொழிக்கே கல்லூரிகளில் போதனை மொழியாகக் கற்பிக்க முடியாது எனின், வேறு எம்மொழிக்கு ஆற்றலுள்ளதோ?

கலைச்சொற்கள் இல்லை என்று கூறுவோர்க்கு முத்துக்களைப் பெற வேண்டுமாயின், கடலின் கொந்தளிப்பையும் சுருமின்களின் உபத்திரவத்தையும் அகற்றி ஆண்மையோடு முத்துக்குளிப்பதுபோல, தங்கம் வேண்டுமானால், பாறையின் வெடிப்பிற்கும், மணலின் சரிவிற்கும் துணிந்து பாடுபடுவது போல, தமிழைப் போதனை மொழியாக்க ஆங்கிலத்தில் உள்ள சொற்களுக்கு, நேரான தமிழ்க் கலைச்சொற்களை ஆக்குவதற்கு நம்மிடையே அறிவுடைய பெரியோர்கள் ஏராளமாகவே உள்ளனர். ஓரிரு திங்களில் செய்து முடிக்கும் ஆற்றல் பெற்றவர்கள் நம்மிடையே நிறைய உள்ளனர். தமிழ்ப் பேராசிரியர்களும், புலவர்களும், பழைமைக் கருத்தை மாற்றி, தேவையான புதுமைக் கருத்துக்களைச் செந்தமிழ்த் தேனில் குழைத்து, மாணவர்களுக்கு ஊட்டமுடியும். எடுத்துக்காட்டாகத் திரு ரா. பி. சேதுப்பிள்ளை, டாக்டர். மு. வ, டாக்டர் சிதம்பரனார் முதலியோர்கள் கூடிய விரைவில் ஓரிரு திங்களில் கலைச்சொற்களைத் தயாரிக்கமுடியும். மற்றும், அரசியல் வரலாறு, தாவரவியல், மிருகவியல், இயந்திரவியல், மருத்துவவியல் முதலியவைகளில் தமிழார்வம் உடைய வல்லுநர்

கள் மிக்க ஊக்கத்துடன் பாடுபடுவார்கள் எனையின் நிச்சயமாகக் கல்லூரிகளிலே தமிழ் போதனை மொழியாக ஒலிக்கும் என்பதில் ஐயமில்லை. இப்போதுகூடக் கோயமுத்தூரில் கலைக் கல்லூரியில் 1960-ஆம் ஆண்டு கல்லூரிகளில் தமிழ் போதனை மொழியாக ஆக்குவதற்கு வேண்டிய வழிவகைகள் செய்துவரும் அதன் அமைப்பாளர் திரு. தாமோதரம் அவர்களை நாம் பாராட்டக் கடமைப்பட்டுள்ளோம். மற்றும் அவருக்கு உதவி புரியும் அறிவுடை சான்றோர்களையும் பாராட்டி, அவர்களுக்கு ஊக்கத்தையும், உற்சாகத்தையும் கொடுத்து வருதல் வேண்டும். அங்கு முதன்முதலாக அரசியல், வரலாறு, பொருளாதாரம் முதலிய பிரிவுகள் தொடங்கப்பட்டு வெற்றியும் அடைந்துள்ளன.

தமிழகத்தின் பற்பல இடங்களிலிருந்து பற்பல துறைகளின் வல்லுநர்களை அழைத்து அவர்களின் ஒத்துழைப்பைக் கேட்டுள்ளனர். நமது கல்லூரியில், அரசியல், வரலாறு, பொருளாதாரம் என்னும் மூன்று துறைகளில் M. A. பட்டம் பெற்றவரும், வல்லுநருமான நமது மதிப்புறகுரிய பெருந்தகை பேராசிரியர் திரு. நடராசனார் அவர்களும், அக்குழுவில் உறுப்பினராகச் சேர்க்கப்பட்டுள்ளார் என்று எண்ணுகின்றபோது நமக்கெல்லாம் மட்டற்ற பெருமை உண்டாகிறது. அத்தகைய செயலைச் செய்துவரும் இக்குழுவிற்கு, கல்லூரி மாணவர்களாகிய நாம் நம்மாலான உதவியும் செய்து அவர்கள் எடுத்துள்ள செயல் வெற்றி யடைய விழைகின்றோம்.

தமிழக இளைஞர்கள் சிறப்பாக, இலக்கியத் துறையின் தேவைகளை உணர்ந்து, மாந்தேயனின் கட்டுரைக் கவிதை, சார்லஸ்-லாமின் இசைக்கட்டுரை, அடிசனின் சமுதாயக்கட்டுரை, வறட்சனின் கருத்துக் கட்டுரை, டால்ஸ்டாயின் கதைக்கட்டுரை, ரோமல் ரோலந்தின் வாழ்க்கைக் கட்டுரைகள் தமிழகத்தில் மிளிர்ச் செய்ய வேண்டும்.

“தமிழ் மொழி தழைக்க, தமிழ் மணங்கமிழ், தமிழ் ஒளிவீச, தமிழ் ஒலி முழங்க” செய்வதே நமது தலையாய கடன்.

வாழ்க தமிழ்!

இளங்கோ இயற்றிய இலக்கியம்

by

தி. வி. சந்திரசேகரன், பி.யு.சி., பிரிவு “டி”

இளங்கோ வடிகள் ஓர் சமணத் துறவி. இவருடைய சகோதரனோ சேரமன்னன் செங்குட்டுவன் ஆவான். சோதிடன் கூற்றால் அண்ணனுக்கு ஆட்சியை அளித்துவிட்டு, தான் துறவறத்தை மேற்கொண்ட பெருந்தகையர் இளங்கோ வடிகள். நங்கு இளங்கோவடிகளைப்பற்றிக் கூறக் காரணம், அவர் இயற்றிய சிலப்பதிகாரமே.

சிலப்பதிகாரம் உலகத்திற்கு முக்கியமாகத் தமிழகத்திற்கு ஒரு தலைசிறந்த நூல். இது முப்பெரும் காண்டங்களையும், முப்பத்திரிய காதைகளையும் கொண்டது. ஐம்பெரும் காப்பியங்களில் முதன்மையானது. இந்நூல் அரிய மூன்று நீதிகளை உணர்த்துகிறது. முடியுடை மூவேந்தர்களையும், அவர்தம் தலை நகரங்களையும்பற்றிக் கூறுகிறது இந்நூல். மற்றும், இது சொல்நயம், பொருள் நயம், இயற்கை வருணனைகள் ஆகியவை செறிந்தது. பண்டைக்கால மக்களின் நாகரிகம், கலைச்சிறப்பு ஆகியவற்றை உணர்த்துகிறது. பாரதியாரும் இந்நூலின் பெருமையைப்பற்றி, “நெஞ்சையள்ளும் சிலப்பதிகாரம் எனும் மணியாரம்” என்று பாராட்டியுள்ளார்.

சிலப்பினது செய்திகளை முதன்மையாகக்கொண்டு எழுதப்பெற்றதால் இந்நூல் சிலப்பதிகாரம் எனும் பெயர் பெற்றது. வணிகர் குலத் தோன்றலாகிய கோவலன் உரிய பருவத்தில் கண்ணகியை மணந்து இல்லறம் நடத்தினான். பிறகு, மாதவி எனும் ஓர் நடனமாதுடன் சிநேகம் பூண்டு அவளுடன், மனைவியை ஒதுக்கி, வாழ்ந்து வந்தான். தன்னுடைய குன்றுபோன்ற செல்வங்களை எல்லாம் அவள்பால் செலவிட்டான். பிறகு, ஒரு காரணத்தால் அவளைப் பிரிந்துத் தன் மனைவியின் கால்சிலம் பொன்றைக்கொண்டு, மனைவி யுடன் பாண்டிய நாட்டை அடைகிறான். அங்

கோர் பொற்கொல்லனால் கள்வன் எனக் குற்றம் சாட்டப்பட்டு உயிரிழக்கிறான். இதையறிந்த கண்ணகி கோபத்துடன், பாண்டியன் அவையடைந்து, தன் கணவன் கள்வனல்லன் என நிரூபித்து, மதுரைமா நகரைத் தீக்கிரையாக்குகின்றாள். பிறகு சேரநாட்டைந்து கணவனுடன் விண்ணாலகு எய்துகின்றாள். இதுவே சிலப்பதிகாரமாகும்.

இவ்வரலாற்றையே இளங்கோவடிகள் இயற்றினார், அரும்பெரும் காப்பியமாக. இளங்கோவடிகள் இந்நூலின் வாயிலாக மக்களுக்குப் பஞ்சமாபாதகங்களை விளக்கிக் கூறியுள்ளார். இவர் இந்நூலில் பல இயற்கை வருணனைகளைப் படித்துப் படித்துப் புத்தின்பம் பெருகுமாறு வருணித்துள்ளார். உதாரணமாக, நாடு காண் காதையில், கவுந்தியடிகள், கோவலனுக்கு, மதுரைக்குச் செல்லும் வழியில் உள்ள துன்பங்களைக் கூறுவதாக, இளங்கோவடிகள் கூறுகிறார்.

“மதுரைக்குச் சோலை வழியாகச் சென்றால், அங்குப் பூமி பிளக்குமாறு வேர் ஊன்றிய வள்ளிக்கிழங்குகளைத் தோண்டிபெடுத்த பள்ளங்களில் சண்பக மரங்கள் நிரப்பிய பூக்கள் நிறைந்திருக்கும். இதையறியாது சென்றால், செல்பவர்கட்குத் துன்பத்தை இல்து உண்டாக்கும். இதினின்று ஒதுங்கிச் செல்வோரைத் தேன் ஒழுகும் பலாப்பழங்கள் பகைபோலாகி, தலைபின்மீது மோதும். மஞ்சள் இஞ்சி முதலியன தம்முள் கலந்து இருக்கும் தோட்டங்களில் பலாப்பழத்தினது விதைகள் ஆகிய பரல்கள் பகையாய்க் கால்களில் உறுத்தும்.” இவ்வாறு இயற்கையின் எழிலை வருணிக்கிறார் இளங்கோ வடிகள்.

இக்காரணங்களால் இளங்கோவடிகள் இயற்றிய இவ்விலக்கியம் என்றென்றும் அழியாப் புகழுடன் பெருமை பெற்றுத் திகழ்கின்றது.

புலவர்களின் வீரம்

by

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பண்டைக் காலத்திலே புலவர்கள் யாருக்கும் அஞ்சி வாழ்ந்ததில்லை. தவறு கண்ட இடத்திலே, தவற்றைச் சுட்டிக் காட்ட அவர்கள் ஒருபோதும் தயங்கிய தில்லை. புலவர்களின் வீரத்தைக் காண வேண்டுமென்றால் புறநானூற்றைத் திருப்புகள். பண்டைய ஏடுகளைப் புரட்டுங்கள். அப்போது தெரியும் மேற்கண்டவைகள், உண்மையா அன்றிப் பொய்யா? என்று.

பண்பு கண்டவிடத்துப் பாராட்டியும், தீயன கண்டவிடத்துக் கடிந் துரைத்துத் திருத்தியும் வாழ்ந்த புலவர்களின் செய்திகள் நமக்கு ஒரு நல்ல ஏடாக விளங்குகின்றன. பாடிய பாட்டுக்குப் பரிசில், பரிசில் பெறுவதற்குப் பாடல் என்று வாழ்ந்தவர்களில்லை சங்கப் புலவர்கள். அந்தச் சங்ககாலப் புலவர்களைப்பற்றி இவண் ஆராய்வோம்.

பாண்டியன் அறிவுடைநம்பியின் ஆட்சியில் ஒரு குறை நேர்ந்தது. அதாவது நாட்டு மக்களிடமிருந்து வரி வாங்குவதில் தான் குறை ஏற்பட்டது. இதனைப் பிசிராந்தையார் கண்டார். உடனே மன்னன்பால் சென்று,

காய் நெல் அறுத்துக் கவளம் கொளினே
மாநிறைவு இல்லதும் பன்னாட்டு ஆகும்,
தூறசெறு வாயினும் தமிழ்த்துப்புக்கு உணினே
வாய்ப்பு வதனினும் கால்பெரிது கெடுக்கும்;
அறிவுடை வேந்தன் நெறியறிந்து கொளினே
கோடியாத்து நாடு பெரிது நந்தும்;
மெல்லியன் கிழவன் ஆகி, வைகலும்
வரிசை அறியாக் கல்லென் சுற்றமொடு
பரிவுதப எடுக்கும் பிண்டம் நச்சின்
யானை புக்க புலம் போலத்
தானும் உண்ணான்; உலகமும் கெடமே.

(புறம் 184)

என்று கூறினார். மேலே உள்ள பாட்டை நோக்குமிடத்துப் புலவர் பிசிராந்தையாரின் வீரம் தெள்ளத்தெளிவாக விளங்குகிறதன்றோ?

பிசிராந்தையாரைப் போலவே ஆலத்தூர் கிழார் என்ற புலவரும் தவறிய மன்னவர்களை இடித்துரைக்கத் தயங்கிய தில்லை. இதனைக் கீழேயுள்ள பாடலிலிருந்தே அறியலாம். அதாவது, கருவூர் என்னும் நகரம் சேரர்க்கு உரியது. அதனை ஒருகால் சோழன் குழுந்தத் துத்துஞ்சிய கிள்ளிவளவன் முற்றுகை இட்டான். கருவூர் மன்னன் எதுவும் செய்யாது வாளா இருந்தான். அவ்வாற்றங்கரையிலிருந்த காவல் மரங்களைச் சோழர் படையினர் வெட்டி வீழ்த்தினர். அவ்வெட்டும் ஒலிகேட்டும் சேரமன்னன் கோழைபோன்று அடங்கியே கிடந்தான். இதைக் கண்ட ஆலத்தூர் கிழார் நேரே சோழ மன்னனிடம் சென்று, 'உன்முரசின் ஒலிகேட்டும் போருக்குப் புறப்படாத ஒருவனிடம் உன் வீரத்தைக் காட்டுவது நல்லதன்று; இது வெட்கப் பட வேண்டிய விஷயம் என்று கூறினார்.

'அடுகை யாயினும் லீடுகை யாயினும்
நீ அளந்து அறிதின் புரைமை; வார்கோல்
செறியரிச் சிலம்பின் குறுத்தொடி மகளிர்
பொலஞ் செய் கழங்கின் தெற்றி ஆகும்
தண்ணான் பொருளை வெண்மணல் சிதையக்
கருங்கைக் கொல்லன் அரஞ்செய் அவ்வாய்
நெடுங்கை நலியம் பாய்தலின் நிலை யழிந்து
வீகமழ் நெடுஞ்சினை புலம்பக் காவுதொறும்
கடிமரம் தடியும் ஓசை தண்ணூர்
நெடுமதில் வரைப்பின் கடிமனை இயம்ப
ஆங்கு இனிது இருந்த வேந்தனோடு நங்குநின்
சிலைத்தார் முரசும் கறங்க
மலைத்தனை என்பது நானுத்தக வுடைத்தே !'

(புறம் 36)

மேற்கண்ட பாட்டைப் பார்க்குமிடத்து, ஆலத்தூர் கிழாரின் மன வலிமையை என்னென்பது. ஏனெனின் கிள்ளிவளவன் வலிமை மிக்கவன். இவ்வலிமையும், ஆற்றலும் மிக்க அரசனிடம் சென்று, 'உன் செயலும் வெட்கப்படத்தக்கது' என்று கூறினாரென்றால், ஆலத்தூர் கிழாரின்

மனம் உண்மையிலே வலிமை பெற்றது அன்றோ?

புல்லாற்றார் எயிற்றியனார் என்ற புலவரைத் தெரியாதவர் யாரும் கிடையாது. பாட்டுகள் பலபாடித் தம் புலமையைத் தெரியப்படுத்தியவர் புல்லாற்றார் எயிற்றியனார். ஒரு சமயம் கோப்பெருஞ்சோழன் வாழ்வில் ஒரு பெருஞ்சிக்கல் ஏற்பட்டது. யாது காரணத்தாலோ, கோப்பெருஞ்சோழன் மக்கள் அவனோடு முரணினார்கள். அரசனும் மக்களும் போருக்கு ஆயத்தமாகிவிட்டனர். இதனைக் கண்ட புல்லாற்றார் எயிற்றியனார் கவலைகொண்டார். யாது செய்வதென்று புரியவில்லை. யாரிடம் முதலில் சென்று அறிவுரை கூறுவது என்று தெரியாமல் கலங்கினார். கடைசியில் கோப்பெருஞ்சோழனிடமே சென்றார். உணர்ச்சிக் கொந்தளிப்பின் உச்சநிலையில் உள்ள மன்னன்பால் சென்று, எடுத்த எடுப்பிலேயே 'போரைக் கைவிடுக' என்று கூறிவிட முடியாது. எனவே புலவர் அங்கனம் கூறவில்லை. எனவே

'மண்டம ரட்ட மதனுடை நோன்தான்
வெண்குடை விளக்கும் விறல்கெழு வேந்தே!
நிந்தலை வந்த இருவரை நினைப்பின்
தொன்றுறை துப்பின்நின் பகைவரும் அல்லர்;
அமர்வெங் காட்சியொடு மாறெதிர்பு எழுந்தவர்
நினைவும் கால நீபும்மற் றவர்க்கு
அனையை அல்லை

(புறம் 213)

என்று கோப்பெருஞ்சோழனது மேம்பாட்டையும், அவனை எதிர்த்து அறியாமை துணையாக வந்துள்ளோர் வலி

யின்மையையும் இயம்பி அவனைப் புகழ்ந்து கூறிவிட்டு, பிறகு

அடுமான் தோன்றல்!
பாந்துபடு நல்லிசை எய்தி மற்றுநீ
உயர்ந்தோர் உலகம் எய்திய பின்னும்
ஒழித்த தாயம் அவர்க்கு உரித் தன்றே?
அன்னது ஆதலும் அறிவோம்! நன்றும்
இன்னும் கேண்மதி இசைவெய் யோயே!
நின்ற துப்பொடு நிற்குறித் தெழுந்த
எண்ணில் காட்சி இளையோர் தோற்பின்
நின்பெருஞ் செல்வம் யார்க்கு எஞ் சுவையோ?
அமர்வெஞ் செல்வ! நீயவர்க்கு உலையின்
இகழுநர் உவப்பப் பழி எஞ் சுவையே!

(புறம் 213)

'நினக்குப்பின் இந்த அரசரிமையாருக்கு உரியது? அது அவர்களுக்குத்தானே? என ஒருகேள்வி கேட்கிறார். கேள்வியைக் கேட்டவுடனே, அது நினக்கே நன்கு தெரியுமே! என்று கூறி, "புகழ் விரும்புவனே, எண்ணத் தெரியாத இளையர் தோற்கிறார் என்று வைத்துக் கொள். நின்பெருஞ் செல்வத்தை எவர்க்கு விட்டுச் செல்வாய்? இல்லையென்றால் நீயேதோற்றுவிடுகிறாய் என்று வைத்துக் கொள். இதுவரை நீ சேர்த்த புகழ் தொலையும், பழிதான் உனக்கு ஏற்படும். ஆதலால் நீ போரைக் கைவிடுதலே நல்லது என்று கூறினார்.

மேற்கண்ட புறநானூற்று நிகழ்ச்சிகளையும் பாடல்களையும் நோக்குமிடத்து அத்தகைய, அக்காலத்திய புலவர்கள் எப்படிப்பட்ட வீரம் வாய்ந்தவர்கள் என்பதைத் தெள்ளத் தெளிவாகத் தெரிவிக்கின்ற தல்லவா?

மன் மாயை

by

சிவ. ஜெயராமன், கலை இறுதி வகுப்பு,

‘மனம்’ என்னும்வார்த்தையைப் பற்றி நாம் அடிக்கடி பேசினும், நம்மில் அதைக் கண்டவர் எவருமில்லை. மனத்தைப் பார்க்க முடியாது; ஆனால் உணரமுடியும். சுதந்திரமாகவாழும் ஒருவன், மனத்திற்கு அடிமையாகவே இருக்கமுடியும். புறத்தில் இஷ்டம்போல் நடக்கலாம். ஆயினும், அகத்தைப் பொறுத்த வரையில் மனத்திற்குக் கட்டுப்பட்டே ஆகவேண்டும். நாட்டையாளும் அரசன்கூட மனத்தைத் தன் னிச்சைபோல் ஆட்டுவிக்க முடியாது. ஆகவே நாம் எல்லோரும் மனத்தின் அடிமைகளே!

இவ்வுலகில் நடக்கும் காரியங்கள் அனைத்தும் மனத்தையே அடிப்படையாகக் கொண்டுள்ளன. அதாவது மனமே எல்லாக் காரியங்களுக்கும் மூல காரணம். நம்மை இப்பிறவிப் பெருங்கடலில் சிக்கித் தவிக்குமாறு செய்வதும் மனமே. சான்றாகத் தாயுமானவர்,

“இறப்பும் பிறப்பும் பொருந்த-எனக்
கெவ்வணம் வந்ததென் றெண்ணியான்
பார்க்கில்
மறைப்பு நினைப்புமாய் வந்த-வஞ்ச
மாய மனத்தால் தோழி”
என்று கூறுகிறார்.

‘மாய மனத்தால்’ என்ற அடிகளால், அவர் மனத்தை மாயைக்கு ஒப்பிட்டிருப்பது உள்ளங்கை நெல்லிக்கனியாய்த் தெரிகிறது. மனமும் மாயையும் வெவ்வேறானவை அல்ல; இரண்டும் ஒன்றே.

மேலும் நம் நாட்டு ஆன்றோர்கள்,

“மன மன மெங்குண்டு மாயையு மங்குண்டு
மனமாயையன்றி மற்றொன்று யில்லை
பிணையாய வேண்டா பிதற்றவும் வேண்டா
தனையாய்ந் திருப்பது தத்துவந்தானே...”

என்று அருளியிருக்கின்றனர். இன்னும் அநேக பாடல்களில் நம் சான்றோர்கள் மனத்தை மாயைக்கு ஒப்பிட்டுத், திருவாய்

மலர்ந்தருளியிருக்கின்றனர். எனவே, மனமே மாயை; மாயையே மனம்!

‘மன்’ என்றால் ‘நினை’ என்று பொருள் கூறுவாருமுள்ளார். நினைத்தற்குக் காரணமாக இது இருப்பதால், நாம் மனம் என்று அழைக்கிறோம். ஒரு காரியம் நடைபெற மனமே காரணம் என்று முன்னர் பார்த்தோம். எவ்வாறெனில், ஒரு காரியம் செய்யப்படுமுன், மனம் அதை நினைக்கிறது. வாக்கு அதைப்பற்றி வசனிக்கிறது. அவ்வாறே நினைத்த தொழிலைத் தேகம் செய்கிறது.

பஞ்சபூதங்களின் குணங்களும் மனத்தில் இருப்பதைப் பரக்கக் காணலாம். மனம் எவ்வாறு நிலத்தை நிகர்க்கிறது எனில், நிலத்திற்கு இருக்கும் கடின குணத்தைப்போல் மனத்தில் ‘நான்’ என்று நகடிமாய் நிற்கும் குணமிருக்கிறது. இக்குணம் அகங்காரம்.

அடுத்த பூதம் நீர். நீரில் ஒரு சிறிய கல்லைப் போட்டால் அடுக்கடுக்காக, ஒன்றைத் தொடர்ந்து மற்றொரு அலை எழும். அதுபோல் மனத்தில் ஒன்றை யொன்று ஒட்டிய நினைவு அலைகள் எழும். இக்குணம் சித்தம்.

அடுத்த பூதமான நெருப்பிற்கு வருவோம். நெருப்பு தன் பிரகாசத்தால் ‘இது இன்ன பொருள்’ என்று விளக்குவதுபோல, மனமும் ‘இது இன்ன விஷயம்’ என விளக்கிக் கூறும் தன்மையது. இக்குணம் புத்தி.

அடுத்தது காற்று. காற்று ஓர் இடத்தில் நிற்காது, அலைந்துகொண்டேயிருக்கும். அதுபோல் மனமும் அலைகிறது. ஏனெனில், ஒன்றைப் பற்றியே நினையாது, எப்போதும் எதையாவது நினைத்துக்கொண்டே இருக்கிறது. இதற்குத் தான் ‘மனம்’ என்று பெயர்.

கடைசி பூதம் ஆகாயம். எவ்வாறு ஆகாயம் மற்ற நான்கு பூதங்களுக்கும் இடங்கொடுத்து, அவற்றை மீறி முடிவில்லாது பரந்து நிற்கின்றதோ அவ்வாறே, புத்தி, சித்தம், மனம், அகங்காரம் ஆகிய நான்கிற்கும் இடங்கொடுத்து, அசையாது களங்கமற்று நிற்கும் ஒருகுணமும் அந்தக் கரணத்திற்கு (மனம்) உண்டு. இக் குணமே 'உள்ளம்.' இவ்வாறு அந்தக் கரணம் பல குணங்களைக் கொண்டிருந்தாலும், அதில் வாயுவின் தன்மையாகிய அலையுங்குணமே அதிகமாக இருப்பதால், 'மனம்' என நாம் அழைக்கிறோம்.

பிறவிப் பிணியிலிருந்து, நாம் விடுதலை பெறவேண்டுமாயின், அதற்குக் காரணமாகிய மனத்தை ஒழித்தல் அவசியம். 'மன' நாசம் மோட்சத்திற்குக் காரணமாக இருக்கிறது ' என்று வேதாசுவாசிகள் கூறுகின்றனர். ஒருவன் தீய குணங்களைக் களைந்து நற்சீலனாக விளங்கினாலும், அல்லது நல்ல கருமங்களைச் செய்து சிறப்புற இருந்தாலும் அவனுக்கு

இப்பிறவிப்பிணி நீங்குதல் இல்லை. மனம் ஒழிந்தாலன்றி, அவனால் இப்பிறவியிலிருந்து மீளமுடியாது. இதைக்கருதியே தாயுமானவர்

"சினமிதக்கக் கற்றலும் சித்தியெல்லாம்
பெற்றலும்
மனமிதக்கக் கல்லார்க்கு வாயேன்
பராபரமே"

என அருளியுள்ளார்.

கடைசியாக, அகங்காரம், அக்கிரமம், அகந்தை, அஞ்ஞானம், அனாசாரம், அகீர்த்தி, அவிர்த்தம், அவமரியாதை, அசித்தி, அதர்மம், அசூயை முதலியன மனத்தில் தோன்றும் தீய குணங்களாம். மனம் ஒரு பொருளை நினைக்கக் காரணம், அப்பொருளின்மீதுள்ள ஆசையே. இங்ஙனம், நம் மனம்பல பொருள்களின்மீது இச்சைகொண்டிருப்பதால், நம்மைப் பல துன்பங்களுக்கு ஆளாக்குகின்றது. இதை உணர்ந்தே புத்தர் "ஆசையை ஒழி" என்று நவின்ருர் போலும்!



—By P. Sundara Raj, P.U.C. E.

பிளாட்டோவும், கல்வியும்

by

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இப்பரந்த உலகில் அறிஞர்கள் எழுதிய நூல்கள் கட்டலைப்போல் பரந்தும், மலையைப்போல் குவிந்தும் கிடக்கின்றன. அவைகளை யெல்லாம் படிப்பதென்பது பல பிறவிகளைப் பெற்றாலும் நம்மால் முடியாத ஒரு அரிய செயலாகும். இந் நிலையில் தற்கால அறிஞர் பெருமக்களும் நூல்களை எழுதிக் குவித்துக் கொண்டே யிருக்கின்றனர். நம்முடைய சிறிய வாழ்க்கைக் காலத்தில் நாம் நம்மால் எத்தனை நூல்களைக் கற்க முடியுமோ அத்தனை நூல்களையும் கற்றுப் பயன்பெறவேண்டும். நம்முடைய வாழ்க்கைக்காலம் சிறியதாகையால், நம்முடைய நல்வாழ்க்கை வளரத் துணை செய்யும் நூல்களைக் கற்று, கற்றதோடு கில்லாமல் வழிகளை வாழ்க்கையில் கடைப்பிடித்து உலக வாழ்க்கையில் நற்பயனை யடைய வேண்டும். கல்வியின் சிறப்பைக் கூறத் தொடங்கும் வள்ளுவர் கல்வியினுடைய சிறப்பு, கற்றோடையும் பெருமை, கல்லாதவருடைய இழிவு முதலியவைகளைப் பற்றிக் கூறிச் சென்று, கல்விச் செல்வம், பொருட் செல்வம் ஆகியவைகளின் சிறப்புக்களை ஒப்பிட்டுக் கல்விச் செல்வமே சிறந்தது என்கிறார். கல்வியால் கற்றவர்கள் இன்புறுகின்றார்கள்; அவர்கள் வாயிலாக மற்றவர்கள் அறிந்து இன்புறுகின்றார்கள்; பொருட் செல்வமுடையவர் பெருந் துன்பங்களுக்குள்ளாக வேண்டியிருக்கின்றது. ஆகையால், கற்றவர் கல்வியைப்போற்றி யடைகின்றனர். பொருட் செல்வத்திற்குக் கல்விபோல் அழிவில்லாமல் நிலைக்கக்கூடிய தன்மை இல்லை; கொடுக்கக் கொடுக்க வளரும் சிறப்பு அதற்கில்லை. கல்வியின் சிறப்பைக் கூறிப் போந்த வள்ளுவர்

“கேடில் விழுச்செல்வம் கல்வி ஒருவற்கு
மாடல்ல மற்றவை யவை”

என்று குறிப்பிடுகிறார்.

தமிழ்நாட்டில் வாழ்ந்த திருவள்ளுவருடைய கருத்துக்கள் இத்தன்மையனவா

யமைய, பண்டைய கிரேக்க நாட்டி அறிஞரான பிளாட்டோவின் கல்வியைப் பற்றிய கருத்துக்கள் சிலவற்றை நோக்குவோம்.

பிளாட்டோ உலகுவாழ் மக்களை மூன்று பிரிவாகப் பிரிக்கின்றார்; முதலாவதாக நாட்டையாளும் பிரிவினர்; இரண்டாவதாக நாட்டையும், அரசியலையும் பாதுகாப்பதும், அதற்காகப் போராடுபவருமாவர். மூன்றாவதாக நாட்டின் நலத்திற்கும், அரசியல் நலத்திற்கும் உழைப்பவார்; முதலிரண்டு பிரிவினருக்காக உணவு உடை முதலியவைகளைக் கொடுத்துதவும் வேளாளர், தொழிலாளர், வணிகர் முதலியோராவர் மூன்று பிரிவுகளைக் குறிப்பிடும் பிளாட்டோ அவரவர்களுக்குத் தனித் தனியாக அவர்களுடைய தன்மைகளுக்கொப்பக் கல்வி பயில்விக்க வேண்டும் என்கிறார்.

ஒரு நாட்டினுடைய அரசியல் ஒழுங்காக இயங்க மக்களுடைய ஒத்துழைப்பு இன்றியமையாதது. ஒவ்வொருவனும் தன்னுடைய உரிமை, கடமை முதலியவைகளை யறியும் தகுதியுள்ளவனாகவும், அவைகளைப்பற்றிச் சிந்திக்கும் ஆற்றலுள்ளவனாகவும் இருக்கவேண்டும். மக்களுடைய அறிவை வளர்ப்பதும், அவர்களைச் சிந்திக்கத் தூண்டுவதும் கல்வியைத் தவிர வேறென்றுமில்லை. ஆகையால் ஒருநாட்டரசியல் ஒழுங்காக இயங்க அந்நாட்டு மக்களுக்கு ஒழுங்காகக் கல்விப் பயிற்சியளிக்கவேண்டும்.

“சட்ட அமைப்பாளர்கள் முதன் முதலில் இளைஞர்களுடைய கல்வியைப் பற்றியே கவனஞ் செலுத்தவேண்டும்; மக்களுடைய ஒழுக்க மேம்பாட்டிற்குத் தகுந்தாற்போல் அரசியலும் மேம்பாட்டைகொடுத்து” என்னும் அரிஸ்டாட்டிலின் கூற்று ஈண்டுக் குறிப்பிடத் தக்கது.

கல்வியின் பல்வகை நோக்கங்களுள் குறிப்பாக இரண்டை விளக்குகின்றார். முதலாவதாகக் கல்வி ஒருவனிடத்தில்

இயற்கையாயமைந்த பல நற் பண்புகளை வளர்க்கவேண்டும். ஒருவன் இரக்க முடையவனு யிருக்குங்காலத்துக் கல்வி அனுடைய இரக்க மனப்பான்மையை மிகவும் வளர்ப்பது. ஒருவன் வள்ளன்மையில் சிறந்து விளங்கினால் கல்வி அனுடைய வள்ளன்மையைமேலும் வளர்க்கும். இரண்டாவதாக ஒருவனிடத்திலிருக்கும் மனிதத் தன்மையை வளர்ப்பது. மனிதனுடைய மனம் மிருகத்தன்மையிலிருந்துகால் அவனைத் திருத்தி நல்வழிப்படுத்தும் தன்மையது.

கல்வியின் நோக்கத்தைப் பற்றிக் கூறிய பின், கல்வியினால் விளையும் பலன்களைப் பற்றிக் கூறுகிறார். கல்வி சரியானதாக இருக்கவேண்டும்; முறையாகக் கற்பிக்கப்படவேண்டும். இத்தகைய கல்வியைப் பெறும் ஒருவன் பிற்காலத்தில் அமைதியான தன்மையை யுடையவனாகவும், உயர்ந்த மனப்பான்மை யுடையவனாகவும் விளங்குவான். கல்விமுறையற்றதாகவும், தீயதாகவும் அமையுங்காலத்து அதனால் ஒருவன் தீயவனாகவும், காட்டுமிராண்டியாகவும் ஆகிவிடுகின்றான். ஆக கல்வியினால் பயனடைய வேண்டுமானால் கல்விமுறை முறையானதாகவும், சரியானதாகவு மமையவேண்டும். மக்கள் தீயவர்களாகவும், காட்டுமிராண்டிகளாகவு மிருப்பதற்கு அவர் தம் அறியாமையே காரணம் என்றும், அவர்களுடைய அறிவுக் கண்ணைத் திறந்துவிட்டால் அவர்கள் எல்லோரும் நல்லவராகி விடுவர் என்றும் கூறுகிறார்.

மக்களை ஆளும் பிரிவினராகவும், அவர்களுக்குத் துவிசெய்ய இரண்டு பிரிவினராகவும், ஆக மூன்று பிரிவுகளாகப் பிரித்து அவரவர்களுக்கு இளமையிலிருந்தே கல்விப் பயிற்சி அளித்து வரவேண்டும்.

யாரிடத்தில் 'உள்ளறிவு', 'மதிதுட்பம்' அதிகமா யிருக்கின்றனவோ அவர்களை ஆளும் பிரிவாகப் பிரித்து, அவர்களுக்கு வேண்டிய கல்விப் பயிற்சியை அளிக்கவேண்டும். பிற்காலத்தில் மக்கள் நலத்திற்காகவும், அமைதி, இன்பம்

ஆகியவைகளுக்காகவும் உழைப்பவர்களுக்கு 'உள்ளறிவும்' 'மதிதுட்பம்' வாயத்திருப்பதவசியம் என்று கருதுகின்றார். இவவுள்ளறிவினால் அவர் உலகத்தில் உண்மையானவை எவை என்றும், நீதியுடையவை எவை என்றும் பகுத்துணர்வர். அதாவது உண்மை, நீதி ஆகியவைகளின் உண்மைத் தன்மைகளைக் கண்டறிவர். இத்தகைய செம்மையான கல்விப் பயிற்சி பெறும் ஆளும் பிரிவினர் பின்னர் மக்களுக்கு நன்மை, இன்பம், அமைதி முதலியவைகளை அடையச் செய்யும் செயல்களையே மேற்கொள்வர். ஆகையால் மக்கள் பிற்காலத்தில் நலத்துடனும், அமைதியுடனும் இருக்கவேண்டுமானால் ஆளும் பிரிவினருக்கு உள்ளறிவு, மதிதுட்பம் ஆகிய தன்மைகள் பொருந்தியிருக்கவேண்டும்.

உள்ளறிவு குறைவாக உடையோர்க்கும், எதையும் தாமே உணர்ந்த கொள்ள இயலாதவர்க்கும் அவர்களுக்குத் தகுந்த பயிற்சி யளிக்கவேண்டும். மக்கள் நலத்திற்காக, அறிஞர் பெருமக்களால் இயற்றப்படும் அரசியல் சட்டங்கள் முதலியவைகளை அப்படியே பின்பற்றுகிற மனப்பான்மை ஏற்படுகின்ற வகையில் அவர்களுக்குக் கல்விப் பயிற்சி யளிக்கவேண்டும். இத்தகைய கல்விப் பயிற்சியால் நாட்டின் சிறப்பே தங்கள் சிறப்பு என்று கூறும் மனப்பான்மை யுடையவராவர்; அதன் பயனாக நாட்டுப்பற்று மிகுந்து காணப்படுவர். நாட்டிற்கு ஏதாவது இழுக்கு நேருமிடத்துத் தங்களுக்கே இழுக்கு நேர்ந்ததாகக் கருதி அத்தகைய இழுக்கைத் தடைக்க முயலுவர். அரசியலில் தங்களுடைய கடமையாது என்றுணர்ந்து அமைதியான வாழ்க்கையை நடத்துவர்.

ஆகவே பண்டைய கிரேக்க அறிஞரான பிளாடோ மக்களை மூன்று பிரிவினராகப் பிரித்து, அவரவர்களுக்குரிய முறையில் கல்விப் பயிற்சி யளிக்கவேண்டு மென்கிறார்.

நாகரீகத் தொண்டு

by

ஜெ. நித்தியாநந்தம், பி.யு.சி., பிரிவு “டி”

தனி மனிதன் இன்பமாக வாழவேண்டுமானால் சமுதாயம் ஒழுங்குற அமைந்திருத்தல் அவசியம். சமுதாயம் பழங்காலத்திப் பெரிய தேர் போன்றது. அதை அனைவரும் ஒன்று சேர்ந்து இழுக்கவேண்டும். அப்போதுதான் எல்லோருக்கும் இன்பம் உண்டு. பலர் ஏறி உட்கார்ந்து கொண்டு இன்பம் உற, சிலர் இழுத்துச் செல்லுகின்ற தேர் அன்று அது. ஒவ்வொருவரும் தமக்கு உரிய பங்கைப் பெற்று, தங்கள் கடமையைக் குறைவில்லாமல் செயலாற்றுவதுதான் நல்ல சமுதாயம் ஆகும்.

வீதிகளில் அசத்தங்களை அகற்று வதற்கெனச் சிலரை நியமித்து, ஊரைத் தூய்மையாக்கக் காப்பாற்றுகிறோம். அவர்களுக்கு உரிய கூலி முதலியனவைக்காக வரியையும் நாம் கொடுக்கிறோம். அப்படியிருந்தும் தெருக்கள் ஒழுங்கினமாகவே காட்சியளிக்கின்றன. ஆகையினால்தான் ஒவ்வொரு வீட்டார்க்கும் வரையறுத்த சில கடமைகளும் ஏற்படுகின்றன. குப்பையைக் கண்ட இடத்தில் கொட்டாமல் குறிப்பிட்ட ஒரு தொட்டியில் கொட்டுவது; காகிதத்தைக் கண்ட இடத்தில் கிழித்து எறியாமல் குறிப்பிட்ட ஒரு இடத்தில் போடுதல்; கண்ட இடமெல்லாம் எச்சில் துப்பாமல் குறித்த ஓர் இடத்தில் துப்புதல் முதலியவற்றை ஒவ்வொருவரும் கடமையாகக் கொண்டு போற்றினால்தான் தெரு தூய்மையாக இருக்க முடியும். ஆகவே, ‘வரியைச் செலுத்திவிட்டோம், இனி எதைப்பற்றியும் கவலை இல்லை’ என்று இருந்தால் எந்தத் தெருவும் தூய்மையாக இருக்கமுடியாது. நமக்கும் கடமைகள் உண்டு என்று உணர்ந்து, கண்ணியத்தோடு நடந்தால்தான் தூய்மையாகக் காப்பாற்ற முடியும்.

இரயிலுக்குச் சீட்டு வாங்குதல், பஸ் நிலையத்தில் நின்று பஸ் வந்தவுடன் ஏறுதல், தபால் நிலையத்தில் தபால் வாங்குதல் முதலியவற்றில் முன் வந்தவர் முன்னாகவும் பின் வந்தவர் பின்னாகவும் நின்று

இடம் பெறும் முறையில் நன்மை கண்டு வருகிறோம். அந்த ‘கூழ்’ என்னும் ஒழுங்கு முறையில் நன்மை இருப்பதால் தான் அதை விடாமல் போற்றுகிறோம். அங்கெல்லாம் உரிமையை மட்டும் விரும்பிக் கடமையைப் போற்றத் தவறினால், எல்லார்க்கும் துன்பமாய், ஒருவருக்கும் இன்பம் இல்லாமற் போகும். இது போன்றுதான் வாழ்க்கையில் எல்லாத்துறைகளிலும் கடமையைப் போற்றி, உரிமையைப் பெறவேண்டியுள்ளது; சமுதாய மென்னும் தேரை ஒவ்வொருவரும் பற்றி யிழுத்து எல்லோரும் மகிழவேண்டியிருக்கிறது.

ஆனால், இடர்பாடுகள் சில நேர்கின்றன. தேரை இழுக்க ஆயிரக்கணக்காக வந்து நிற்க, தேரின் வடம் நூறடி நீளம் இருந்தால் என்ன செய்வது? எல்லோரும் ஒரே நேரத்தில் இழுக்க முடியாது. காலையில் சிலரும், மாலை சிலரும், வடக்குத் தெருவில் சிலரும், தெற்கில் சிலரும், மேற்கே ஒடும்போது சிலருமாகக் கடமையையும், உரிமையையும் பங்கிட்டுக்கொள்ள நேரும். அவ்வாறு அன்றி எல்லோரும் ஒரே நேரத்தில் இழுக்க விரும்பிப் பிடிவாதம் செய்தால் தேரும் ஓடாது; பயனும் இருக்காது. எடுத்துக் காட்டாக மகாபலிபுரத்தின் சிற்பக் காட்சிகளைக் காண்பதற்குச் சித்திரையில் முதல் நாள் அன்று தமிழ் மக்கள் அனைவரும் போவது வழக்கம் என்று வைத்துக் கொண்டால், எப்படிப்பட்ட சிறந்த அரசாங்கமும் அந்தச் சிறிய ஊரில் போதுமான வசதிகளைச் செய்ய முடியாது; போக்குவரத்து வசதிகளையும் எப்படியும் செய்து முடிக்க இயலாது; தங்குவதற்கும், உண்ணுவதற்கும் உரிய ஏற்பாடுகள், தாறுமாறாய் போகும்; யாரும் பயன்பெற முடியாமல் எல்லோரும் வருந்தித் திரும்ப நேரும். காண விரும்பும் சிலர் தமக்கு வசதியான நாட்களில் சிறுசிறு கூட்டங்களாகப் போய்க் கண்டு

வருவதால் இடையூறு இல்லாமல் இருக்கும். அதனால் பயனும் விளையும்.

தமிழ் நாட்டில் சில திருவிழாக்களின் போது கும்பமேனா முதலான விசேஷ நிகழ்ச்சிகளின் போதும் குறிப்பிட்ட ஓர் இடத்தில் பெருந் திரளான மக்கள் கூடி குவியும் வழக்கம் இந்த இருபதாம் நூற்றாண்டிலும் இருந்து வருகிறது. இத்தகைய நெருக்கடியினால் மரணங்கள் நிகழ்கின்றன. அதற்குமுன்னமே மக்களின் மனம் திரும்பினால் நன்மை ஆகும். 'வேறு நாட்களில் சென்று ஆண்டவனைத் தரிசித்தால் என்ன' என்ற மனத்தூணிவு வர வேண்டும். கற்றுத்தெளிந்தவர்கள் தான் இவ்வகையில் வழிகாட்டிகளாய் அமைதல் அவசியம்.

விழாக்களில் நெருக்கடி மரணங்களைத் தவிர்ப்பதற்கு முன்னே அதற்கு உரிய பரிசீலனாகக் குடும்ப நிகழ்ச்சிகளில் ஏற்படும் நெருக்கடிகளையே முதலில் தவிர்க்கப் பழகவேண்டும். திருமணத்திற்கு அல்லது வேறு விசேட நிகழ்ச்சிகளுக்கு அழைப்பு அனுப்பும்போது, திருமண இல்லம் எத்தனை பேர்க்கு இடம் தரும் என்று எண்ணிப் பார்த்து அத்தனை பேர்க்கு மட்டும் அழைப்பு அனுப்புவது நாகரீகமாகும். ஐரோப்பிய நாடுகளில் இந்த நாகரீகம் வேரூன்றி வளர்கிறது. ஆனால், நம் தமிழ் நாட்டிலேயோ நானுறு பேர்க்கு இடம் உள்ளபோது, நாலாயிரம் பேர்க்கு அழைப்பு அனுப்புகிறார்கள். நூறுபேர் உட்கார்ந்து சாப்பிடவேண்டிய இடத்தில் நூற்றைம்பதுபேர் உட்கார்ந்து ஒருவரை யொருவர் நெருக்கித் துன்பத்தை விளைவிக்கிறார்கள். இது அநாகரீகமான செயல் என்று இனியேனும் நாம் உணரவேண்டும். திருமணத்திற்கு அழைக்கின்றவர்களும், வற்புறுத்தி அழைக்காவிட்டால் தவறாக எண்ணுவார்களோ என்று எண்ணி வற்புறுத்தி அழைக்கிறார்கள். திருமணத்திற்குப் போகிறவர்களும் போகாவிட்டால் வருந்துவார்களே என எண்ணி அதற்காகப் பல இடர்ப்பாடுகளையும் மேற்கொண்டு விரைந்து போய், வீடு திரும்புகின்றனர். இந்த இரு சாரார்க்கும் தெளிவும், துணியும் சிறிது ஏற்பட்டால் எவ்வளவோ நலன் பயக்கும். திருமணத்திற்கு அழைப்பவர்களும் அழைப்பை நிறுத்திவிட்டு

(Invitation) பதிலாக அறிவிப்பு (Information) அனுப்பலாம். திருமணத்திற்குப் போகிறவர்களும் பயணத்தை (Traveling) நிறுத்திவிட்டு, வாழ்த்து (Telegram) அனுப்பலாம்.

சமுதாயத்திற்கு இது எவ்வளவு பெரிய தொண்டு என்பதைச் சிறிது உணர்ந்தால் உண்மை விளங்கும். கல்விக்கூடம் கட்டுதல், மருத்துவமனைக் கட்டுதல் முதலிய பெரிய அறங்களை எல்லோராலும் செய்யமுடியாது. ஆனால் மேற் கூறியவாறு நெருக்கடி தவிர்ப்பதாகிய இந்த சிறிய சமுதாயத் தொண்டு எல்லோராலும் செய்யக்கூடிய எளிய தொண்டாகும். அவர் வருந்துவர், இவர் வருதுவர் என்று எண்ணித் தயங்காமல், சமுதாயத் தொண்டு என்று எண்ணித் துணியும் மனப்பான்மை எல்லோருக்கும் வர வேண்டும்.

திருமண நாட்களில் (புகூர்த்த நாட்களில்) ஒவ்வொரு இரயிலிலும் கூட்டம்; ஒவ்வொரு பஸ்ஸிலும் கூட்டம்; சிறிய ஊரிலும், பெரிய நகரங்களிலும் எங்கும் நெருக்கடி; இடம் கிடைக்காத திண்டாட்டம்; தப்பித்தவறி இடம் கிடைத்தால் வசதிக் குறைவால் போராட்டம். இவற்றை எல்லோரும் தங்கள் அனுபவத்தில் கண்டறிகிறார்கள். வசதிகள் ஓரளவுக்குத்தான் செய்யமுடியும். அதற்குமேல் எந்த அரசாங்கத்தாலும் வசதிகளைப் பெருக்கமுடியாது. ஆகவே, உள்ள வசதிகளையும் கெடுத்து, நெருக்கடியை ஏற்படுத்திச் சமுதாயத்தை அநாகரீக மாக்குவது நல்லது அன்று. இந்நிலையில் வாழ்க்கையைப் பற்றித் தெளிவும், துணியும் உள்ள கற்றமக்கள் முன் வந்து வழிகாட்டவேண்டும். பெற்றுள்ள நாகரீகத்தைக் கெடுக்காமல் காப்பாற்ற வேண்டும். கூடிய வரையில் ஒரே நாளிலும், ஒரே இடத்திலுமாகக் குவியும் பயணங்களைக் குறைக்கவேண்டும். நாம் போய் நெருக்கடியை மிகுதிப்படுத்துவதைவிடப் போகாமல் நின்று, மற்றவர்களுக்கு வசதி கெடாதபடி நடப்பது புதிய நாகரீகத் தொண்டு என்று உணர வேண்டும். இது காலத்திற்கு ஏற்ற நல்ல சமுதாயத் தொண்டு என்றும் நம்ப வேண்டும்.

நீர் ஊற்று

by

சிவ. ஜெயராமன், கலை இறுதி வகுப்பு.

காலை எழுந்த கதிரவனும்—தன்
கடமையை யாற்றும் வேளையிலே
வேலை செய்ய விரைந்தநீ—அதி
வேகமாய்த் தாவிப் பாய்கையிலே
மாலை மறையும் செங்கதிரோன்—தன்
மஞ்ச னொளியின் சோதியிலே
ஆளை மயக்கும் வண்ணமுடன்—புவி
அருவியாய்ப் பொங்கும் நீருற்றே.

1

வெண்மதி வீசிடும் சுடரொளியில்—தூய
வெள்ளிப் பனியை மிஞ்சுகின்றாய்
வண்மலர் மோதிலும் தென்றலைப் போ—லொரு
தெய்வத் தன்மையா லாடுகின்றாய்
விண்மீன் காட்டிடும் புன்னகையில்—மேல்
தாவி எழுந்திடும் தண்சுனையே
கண்ணில் தென்படும் துளியசைய—என்
கருத்தைக் கவரும் பெருந்துளியே.

2

வெம்மையைக் கண்டு நீ வெதும்பவில்லை—வெங்
குளிரையும் கண்டு வெறுக்கவில்லை
மெய்மையாய்ப் பருவங்கள் உண்டிலகில்—எனில்
மேன்மையாய் வாழுவே உளதென்றாய்
செம்மையைக் காட்டும் தம்முடனே—தான்
சிரித் தெழுந்திடும் சுறு சுறுப்பாய்
மேன்மையாய் வாழ்கின்றாய் ஆண்மையுடன் எனில்
மேதினி தன்னில் ஓய்வு முண்டோ?

3

பீறிடும் நீர்த்துளிக் கூட்டங்களே அவை!
பிணைப்பால் ஒருரு மேவுவதென்?
ஊறிடு மதிசய நீர் ஊற்றே!—ஆ
உண்மையாய் எனக்கு நீ மதியூட்டே!
மாறிடும் உணர்ச்சி மாற்ற மதால் உனை—
மாநில மெழுச்சியில் போற்றிடுமே!
பாரினில் உன்போல் வாழ்வினையே பற்றிப்
பரிவுடன் அமைதியாய் வாழ்திடுவோம்!

4

కామశాస్త్రం!

by

'BHABAT BRUSHAN'

చాలా రోజుల్నుండి అనుకొంటున్నా, కామ శాస్త్రం చదవా లని, ఓరోజు ధైర్యం చేసి పాత పుస్తకాలంగట్లో కామశాస్త్రం పుస్తకం కొనేశా. కొన్నానే గాని తీరా చదవటానికి సందర్భం చిక్క లేదు. నే నాపుస్తకాన్ని చదవడం ఇంకెవరేనా చూస్తే ఏమైనా ఉందా?

ఒక్కొక్కప్పుడు నాకు చాల ధైర్య మొచ్చేస్తూంటుంది, ఓనాడు మెల్లగా పుస్తకం బయటికి తీశా, తెరిచా. ఇంతలో బయట బూట్ల చప్పుడు వినిపించింది, గుండె తడిసి చూచుకొన్నా. అది ఆగిపోయి చాలసే పైందని తేలింది. ఇలాంటి సమయంలో భయపడటం నావంటి ధైర్యస్థులు చేయాల్సిన పని కాదు కాబట్టి, రకే మని పుస్తకాన్ని డ్రాయరుసారు గులో పెట్టేశా—

ఎవరో అనుకొన్నా. ఇంతకూ ఆ తలుపు తోసుకొని వచ్చేశాడు సుబ్బారావు. పదిహేను రూపాయల తోలుబూడును వేసుకొని రాజు దర్బారులోని కొచ్చినట్లు గదిలో కొచ్చి స్థూలు సింహాసనంపైన కూర్చోన్నాడు.

‘ఒరే భానూ! సిగరెట్టోటియ్యరా’ అంటూ డ్రాయరుసారు గు తీశాడు. ఇంకేం? కామశాస్త్రం వాడికంట బడింది.

ఆ పుస్తకాన్ని జూచి వాడు నన్నేం తిడ్డాడో అనుకొంటూంటే, వాడు చక్కా ఆ పుస్తకాన్ని చంకలో పెట్టుకొని ‘ఇక తొస్తారా, ఇంట్లో నాన్న లేడు, చదవడాని

కిదే వీలు. నీవు మళ్ళీ చదువుకొందువు గాని లే!’ అని బయలుదేరాడు. నే నేం పలక లేదు.

* * *

వారం రోజులు గడిచాయి.

‘ఏంరో సుబ్బారావ్! పుస్తక మేదీ?’

‘అదే వెతుకుతున్నానోయ్! అగుపించటం లేదు. మా అన్న నడిగితేను వాడు అప్పుడే యిచ్చేశా గదుట్రా’ అన్నాడు. నాతో రా, బాగా వెతికి పట్టిస్తా.

సుబ్బారావుతో వెళ్లినా, వాడు తీవ్రంగా వెతికేస్తున్నాడు. ఏమీ లాభం లేక పోయింది. వాడు కూర్చోని యోచిస్తున్నాడు.

వాడి అలవాటేమిటంటే రాత్రిళ్ళు చదువుతూ పుస్తకం అలాగే మీద పెట్టుకొని నిద్రపోవడం. తరువాత వాళ్ళమ్మ వాడిగదిలో కొచ్చి పుస్తకం మడిచి అలమరలో పెట్టి లైటార్చిపోవడం. ఇది మామూలు.

సుబ్బారావు పుస్తకం తీసికొన్న నాటిరాత్రి చదువుతూ అలాగే నిద్ర పోయాడు. మఱుసటి రోజునుండి పుస్తకం అగుపించ లేదు.

వాళ్ళమ్మ గనుక ఆ పుస్తకం తీసుంటే ఇవ్వేళకే సుబ్బారావు కో పెద్ద అపాయం జరి గుండేది. ఆలాంటి దేమీ యింతవఱకూ సంభవించ లేదు. అయితే ఇంతకూ కామశాస్త్రం ఎక్కడికి పోయినట్లు?!

ఒక్క గదిలో సుబ్బారావు అమ్మ మఱెవరి తోనో అంటోంది. ‘మఱి మా పెద్దబాబాయి (తరువాయి 118-వ పేజీలో చూడుడు)

హనుమంతుని స్వగతము

by

G. CHENGAL RAJU, P. U. C. GROUP B.

కార్యము ముందు వెన్నలను గానక లంకను గాల్చి వేసితిన్,
క్రొత్తము చాలఁ జెడ్డ దని కానక పోయితి, రామచంద్రుఁ డీ
కార్యము నన్ను జేయ మని కాదు గదా యిట కంపినాఁడు, నే
నా బుద్ధి నెట్లు లాదు, దహనాంతర మా నిక నేమి చేసెదన్.

రక్క - ను లందఱున్ నిరపరాధులఁ జంపితి, గార్యవాదు లీ
రక్క - సిచేతఁ జేతు కొకా! రాముని కే మని చెప్పువాడ? నీ
రక్క - ను లందఱున్ యమపురమ్మున కేగిననీతి సీతయున్
జిక్కె - నొకా! సహింపవు సుశీలవతి! గద మంట లెప్పుడున్.

సీత భగ్ను మా నేని నా కోరికేత
ప్రజల నేవిధి సానందపఱుపఁ గలదు ;
అపఠరించు రామాయణహంతకుఁడను
మఱుగుపడునె లోకాభిరామాయణమ్ము.

రక్క - సాధిపు లంతఁ గూలిరి
రక్క - లూడినపక్షు లనఁగొ
చక్క - డిం కెటు రావణాసురుఁ
డాక్క - డైన భువిన్.

రావణుఁ డొక్కటా! యమపురమ్మున కేగిన రామచంద్రుఁ డీ
భూవిభుఁ డొక్కటా సరిపోవునె? రామునిపేరు దక్క - నే?
మా విభుఁ డైన నార్యసుతుఁడైన మేవిధిఁ దల్లడిల్లు, నీ
భూవిభుఁ డెల్లలో బ్రతికేపోవ నుభయమును శారవమ్ముతో.

కాని నేఁ బల్కు - పల్కులు కష్టతరము
ప్రకృతి భీతిలిపోవు నీ రక్క - సులకు
మ; పక్షు జేజిక్కు - నంతసామాన్య లేమి?
కాని 3 వడలించినట్టివంకమ్ము గాదె.

ఒకదఫా వారు దయ గల్గియో మ తేమి
దలచియో నన్ను నిప్పుతోఁ దఱిమినారు
దయలు చెల్ల వీసారి నేఁ దప్పిపోయి
చిక్కినను నన్ను శుచిగా భుజింపఁగలరు.

రాముఁ డీప్రక్క కెట్టుల రాఁగలండు
సీత యటుప్రక్క కేవిధిఁ జేరఁ గలదు ;
యీదఫా వారిచేఁ జిక్కి లేని, కోఁతి
జాడ సుగ్రీవుఁ డేవిధిఁ జూడఁ గలఁడు ?

ఆలసించినఁ గార్యమ్ము గోల యాను
సీతప్రాణాలకే ముందు చేటు గల్లు
రామరావణయుద్ధప్రారంభమునకుఁ
బరికరమ్ములు చేకూర్పవలయు నేమొ!

పైన్య మున్నది వానరపైన్య మైన
నాయుధమ్ములు మా కేల వేయి గలవు
ముప్పు వచ్చిన నిండ్లపై కప్పు లన్ని
బాణతూణమ్ము లై పోవు వానరులకు.

(116-వ పేజీ తరువాయి)

సంగతి ఫర్వా లేదు గాని చిన్న బాబ్బాయికి తొంద
రగా వెళ్ళి జేసెయ్యా లండీ'—అని.

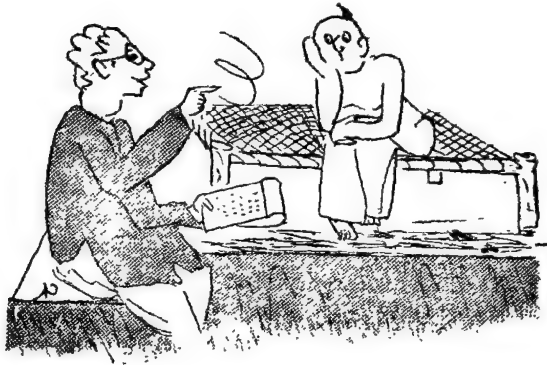
సుబ్బారావు శరీరయంత్రం నిలిచి పోతుం
డేమో అనుకొన్నా గాని, అలాంటి దేమీ జరగ
లేదు. పుస్తక మిప్పు డెక్కడను దన్న సంగతి
స్పష్ట మై పోయింది. అది సుబ్బారావు అమ్మ
బీరువారో ఖచ్చితంగా ఉంటుంది.

ఇక అట్టేసేపు సుబ్బారా వింట్లో ఉంటం
నా కేమంత డేమకరం కా దని బయలుదేరినా.
మళ్ళీ యోచించా. 'నే నాపుస్తకంపైన నా
పేరు వ్రాశానా? లేదా?' అని. ఒకవేళ దుర
దృష్టవశాత్తు నాపేరు వ్రాసుంటే, ఆ పుస్తకం
నా దని సుబ్బారావు బామ్మకు తెలిస్తే, మళ్ళీ
ఎప్పటికీ సుబ్బారావు ఇంటిగుమ్మం తొక్కాల్సిన
అవసరం నాకు కలిగుండేది కాదు!

అమూల్యాభిప్రాయార్థం

by

M. CHITTI BABU, II B.A., BRANCH IV.



రచయిత అనే ప్రతివాడికి గొప్ప ఉబలాటం ఒకటి వుంటుంది. తన అమూల్యరచననిగురించి లోకం ఏ మనుకంటున్నదీ! అని. రాసే దేదో రాసేవి ఊరుకోరాదా? — ఊరుకుందా మన్నా ఊరుకోనివ్వ దా ఉబలాటం. మాటవరసకి చూడండి—రచయిత రచన కాని స్తాడు. కానిచ్చి, అటూ ఇటూ చూస్తాడు. తనకి పరిచయం వున్నవాళ్ళూ, తనదృష్టిలో గొప్పవాళ్ళుగా—రసజ్ఞులుగా తోచినవాళ్ళూ కొందరుంటారు. నెమ్మదిగా వాళ్ళదగ్గరికి వెళ్ళతాడు. తనరచన చూపిస్తాడు. ఆవసరమైతే—కాదు—సావకాశం దొరికితే తన చదివి వినిపిస్తాడు. ఏమివికారాలు తను మనసులో పెట్టుకు రాకాడో ఆవిశారా లన్నీ హావభావ ప్రకటనలతో ప్రదర్శిస్తాడు. ఆత్మనుతి అని అనిపించుకోని విధంగా తనని తానే పొగుడుకుంటాడు. ఆ వింటున్నవ్యక్తి శ్రద్ధగా వింటున్నాడో లేదో నని క్రిగంట గమనిస్తాడు. రసానుభూతానికి ఆయన తనదృష్ట్యా దైన్యము కాస్త కనబడితే, సాయి హాచ్చిస్తాడు. చివరికి ఆదోలా మొహం పెట్టి ‘ఎలా వున్న దంటారూ?’ అని అడుగుతాడు.

ఈ దుర్లభం ఇప్పుడు పుట్టుకు వచ్చింది కాదు. మన పూర్వీకులనుంచీ వుంది. మన ఆంధ్రకవితాపితామహుడికి వుంది. దీన్నే రాగాన చేసి,

“.....ఒప్పుత పురయురసజ్ఞు లూహ తెలియంగల లేఖక పాతకోత్రములో, దొరకినఁ గాక యూరక కృతుల రచియింపు మనంగ శక్యమే!—” అన్నాడు.

నిజమే—

కాగితంమీద కలం పెడితే, లక్ష్మీదేవి ఖంగు మని నృత్యం చెయ్యాలి. నలుగురూ మెచ్చి, ‘నెహబామ్’ అనాలి. ‘మరొక్కరచన, మరొక్కమచ్చు’ అంటూ సారస్వతలోకం పలవరించాలి. అదే రచన. అతనే రచయిత. అటువంటి రచనతో రచయితకే కాదు, ప్రకటనకర్తలకూ, ముద్రాపకులకూ, పత్రికలకూ, శ్రోతలకూ కూడా రకరకాల ఫలశ్రుతులు చెప్పబడ్డాయి.

నే నొక గొప్ప పుస్తకం—కాదు—గ్రంథం రచించినట్టూ, దానికి తగినవ్యక్తిచేత ‘సీతిక’ రాయించాలనే నాకొరిక విఫలమైనట్టూ ఇదివరకొకసారి చెప్పాను కద. ఇక తరవాతకథ:

సీతిక అనేది ఇంటికి కిటికీవంటి దంటారు, విజ్ఞులు. అన్నానికి తగిన ఆదర్శులుగా ఇటువంటి ఉద్బంధానికి తగినవ్యక్తి సీతిక రాసే మంచిదే. కానీ, అటువంటి సందర్భం కుదరనప్పుడు చేయవలసిన దేమిటి?—ఈ సమస్య నన్ను మహాత్రివంగా వేధించింది.

ఈలోగా నామిత్రుడు సన్యాసిరావు తటస్థుడాడు: నా సంగతి సందర్భాన్ని చూచి, ఇలా అన్నాడు. “ఓరి సన్నానీ!—ఇది ప్రజాయుగం కదా?—ఏ ఒక్క వ్యక్తియొక్క అభిప్రాయమో సీతికరూపంగా పుస్తకంలో వేసుకోవటం కంటే, విద్వాంసులూ, విబుధులూ అయిన సాహిత్యపు పిచ్చివాళ్ళని పదిమందిని పట్టుకుని, వాళ్ళ అభిప్రాయాలు సేకరించటం ఎంత ఘనం?”

‘పడుగు రాదుమాట పాటి యై ధరఁ జెలు’. వెంటనే తళానికి వెళ్ళాను. దళసరి అట్టలూ, పది రూపాయలకు బహులాదిగలూ, నాలుగు దారపువుండలూ, చిన్న కత్తెర ఒకటి, మూడి పట్టుకు వచ్చా. మరీ మా సన్యాసిరావుని పట్టుకుని, చాడికి తెలిసిన పత్రికలూ, ప్రముఖులూ, వాళ్ళ చిరునామాలూ—ఒకపెద్ద జాబితా తయారు చేశా.

అనుభవజ్ఞుడు కావటంచేత సన్యాసిరావు మరికొన్ని కిటుకులు చెప్పాడు, “ఓ అజ్ఞానాంధకారమున మునింగినవాడా!—విను. పత్రికలు పలురకాలు. విమర్శకోసం కొన్ని పత్రికలకు ఒక్క-కాపీ పంపితే చాలదు. రెండేసి కాపీలు పంపాలి. కొన్ని పత్రికలు ఒక్క-కాపీతోనే తృప్తి పడతాయి. కొన్ని విమర్శిస్తాయి. కొన్ని ముందు ‘స్వీక్’ రించి తరుపరి విమర్శిస్తాయి. మరికొన్ని ‘స్వీక్’ రించి ఉరుకుంటాయి. ఈ సంగతి ముఖ్యంగా గురించాలి. ఈ విమర్శలను చూచి ఆనందించినవా రై ఆపత్రికాపాతకులు వెంటనే మనపు స్రుకం తెప్పించుకుంటారు.” ఆమూల్య మైన ఆతని సలహాకీ, కాఫీ ఆతిథ్యానికి కృతజ్ఞత తెలిపి ఉత్సాహంగా రెండుఅంగులలో ఇంటికి చేరుకున్నాను.

బుధజను లందరికీ ఒక్కొక్కటిచొప్పునా, పత్రికల వాళ్ళకి రెండేసికాపీల చొప్పునా మంచి పుస్తకాలుగా వీరి తీశాను. ప్రతిపుస్తకమీదా స్వహస్తంతో ‘అమూల్యాభిప్రాయార్థం’ అని రాశాను. చక్కగా ప్యాకెట్లు కట్టాను. మొత్తం నూటఇరవై ప్యాకెట్లు తయారయ్యాయి. ఆవేళ పోస్టులో వాటిని పంపేశాను.

మర్నాటినుంచీ దారిలో ఎక్కడైనా పోస్టు జవాను కనబడితే, “ఏమోయ్, మన కేసునా...?” అని అడగటం ఆలవాటయింది.

నే చలిపది తనాలు ఊరికి పోలేదని కొన్నాళ్ళకే తెలిసింది. ఎలా గంటారా?—మావాడు చెప్పినప్రకారం ‘అమూల్యాభిప్రాయాలు’ రావటం మొదలెట్టాయి. పత్రికల మాట అటుంచండి. ముందు విబుధులు, విద్వాంసులు, పండితులు ఒసంగినసాభిప్రాయాలు తెలిసించండి:

“బ్రహ్మశ్రీ... గారు రచించిన... కొన్ని కథాంశములను మాత్రము విని యున్నాను. అత్యుచిత మనోరంజకములుగను, సుబోధకములుగను గన్పట్టెను... సమకూర్చిన కథలను జరుపువారు... లోకజ్ఞానమును బొందగలరని నా నమ్మకము. ఆశ్చర్యమైన యిట్టి ప్రయత్నమునకు ఆంధ్రమహాజను లందరును దోడ్పడుదురు గాతమని భగవంతుని ప్రార్థించుచున్నాను.”

“బ్రహ్మశ్రీ... తాము వ్రాసిన... గ్రంథములోనుండి కొన్ని... నాకును, నాయొద్ద గూర్చుండిన కొందఱు మిత్రులకును జదివి వినిపించి, పరమానందము గలుగ జేసిరి. ముఖ్యముగా మనయీదూవారికి దీరుబడివేళలలో జరుపు

కొనుటకు జాల వనికి వచ్చును. శ్రీ... గారి యోగికయు, నోర్యను, బాటును గడుంగడు నెన్ను. దగి యున్నవి... తెనుగువార లందరకు గొప్పకానుకగా నిచ్చిన... గారికి మన మందరము జోహారు లానర్పణలని యున్నది... బి రింతటితో నిలువక... వ్రాయ సమకట్టిన తెనుగువారికి మహదుపకారమును జేసినవా రగుదురు.”

“మ. రా. శ్రీ... గారు వ్రాసిన... ఆంధ్రములలో గొన్ని భాగముల నే జదివితి. గ్రంథకర్త గారు మరికొన్ని భాగముల జనువగా నే వింటి... ఈ... జ్ఞానము భారతీయుల కావశ్యకము... పండితులకు గాక జనసామాన్యమున కీపుస్తక మత్యంతోపయోగముగ నుండు, నని నమ్ముచున్నాడను”

“శ్రీ... వ్రాసిన... అను గ్రంథములలో కొన్ని భాగములను చదివితిని. ఇది చాల యుపయోగకర మగు గ్రంథ మనియు, ... బాలురు, బాలికలు, పామరులు చదువుటకు తగిన దనియు నా యభిప్రాయము. గ్రంథకర్త చాల శ్రమ పడి కథలను సంగ్రహించి యున్నారు.”

“—ఇట్టి లోకోపకారకరయి యిప్పనికి బూను కన్న ఈ గ్రంథకర్తగారికి పరమేశ్వరుడు దీ రాయురారోగ్యముల నొసంగి వీరి యుద్యమమును ఫలింపఁ జేయును గాత!”

“బ్రహ్మశ్రీ... గారు రచించిన... అను గ్రంథమును పోల్చులాకన్యాయమున జదివి చూచితిని... తెలుగున నిట్టిగ్రంథము లివే యనవచ్చు నని నా యభిప్రాయము”.

“శ్రీ... గారు రచించిన... అనే గ్రంథములలో కొన్ని భాగములు చదివి చూచినాను... ఈ గ్రంథము తెలుగు దేశమం దందరికి ఉపచరిమం దని నేను నమ్ముతాను.”

“ఆర్యా!—తాము రచించిన... గ్రంథమును నేను కొంతవఱకు చూచితిని. సందర్భము చెడలేదు. సరణి! శ్రీ, బాలురకు గాక పండితులకును చాల ప్రీతిని గల్గించుచున్నది... ఈ కాలములో నిది యెల్ల జ్ఞానదాయక! మని తలంచెదను... మిగుల సులభముగా లోకులకు గ్రహింప తగు నని నా అభిప్రాయము.”

“బ్రహ్మశ్రీ... గారు... పేర నీ గ్రంథమును రచించి కాలానుగుణ్యముగ సామాన్యప్రజలకు మహోపకారము చేయ దలంచిరి. గాన వీరి యుద్యమమును దైవమును, దైవసమాను లైన పెద్దలును కొనసాగించెద రని పూర్తిగా నమ్ముచున్నాను.”

“ఈ గ్రంథము మిక్కిలి యుపయోగకరముగా నున్నదని చెప్పటకు సందేహము లేదు.”

“బ్రహ్మశ్రీ... వ్రాసిన... లో గొన్ని భాగములు చదివి యెంతయో సంతసించితిని.”

ఇక—

ప్రతిక లిచ్చిన అభిప్రాయాలూ అవీ మరొకమాటు ముచ్చటద్దాం.

అరవం రాని అవసరం

by

S. SAI SURYAPRAKASA RAO, III B.Sc., BRANCH I.

నే నడే మద్రాసుకు రావడం మొదటిసారి. సరాసరి వచ్చి మా బావగారింట్లో దిగాను. నాల్గోజు లిట్టే గడిచిపోయాయి. నాకు 'అరవం' (Tamil) బొత్తిగా రాదు. కాని ఈ నాల్గోజుల్లో నాల్గేనాలుగుమాటలు 'వేండ, పోయం, వేణుం' నేర్చుకొని ప్రస్తుతానికి చాలనుకుని సంతృప్తి పడ్డా. కాని అనే ఈ కథకు మూలము లవుతా యని నే నప్పుడు అనుకో లేదు.

'ఒరే! తలకాయ ఆ విధంగా పెరిగి వుండే. సెలూనుకు పోయి రారాదూ! అది కూడ ఒకరు చెప్పాలా!' అంటూ ఒక రోజు ప్రాద్దున్నే దండకం విప్పింది మా అక్క. ఆమె పోయ పడ లేక 'సరే' నని సెలూనుకు బయలుదేరి, ఇంటి ప్రక్కన్నే వుండే సెలూనుకు పోయ కూర్చున్నా! వాడు తలంతా తీవరం చేసి 'షేవ్ పన్నట్టుమా' అని అడిగాడు. 'షేవ్ (Shave)' అన్నాడు గదా! గడ్డంచేస్తా డేమో ననుకొని 'సరే' అన్నా. వాడు 'ఇనకు తెలుగు తెలియాదు' అంటూ గడ్డం చేయడం మొదలెట్టాడు. గడ్డంలో పాలు మీసం కూడ చేస్తా డేమో ననుకొని మీసాన్ని

వేలితో చూపి 'వేండ' అని నా తెలివికి నేనే మురిసిపోతూ అరవం రాకపోయినా నిజంగా అనుకున్నంత బాధ లేదనుకొని ఆనందంగా కళ్ళు మూసుకున్నా. కాని వాడి కత్తి మీసం మీద కూడ పడినట్టు తెలుసుకొని బహుశా వాడు మీసాన్ని మద్రాసు ఫాషన్ లో చేస్తా డేమో ననుకొని మరేమీ మాట్లాడ లేదు. కాని కత్తి చివరంటా దిగేసరికి అనుమానం వేసి ఎదుటి అద్దంలో చూస్తును గదా! ఇంకే ముంది! అప్పటికే సగం మీసం వాడికత్తికి ఆహుతయింది. ఇంకేమన్నా మాట్లాడితే పరువు పోతుం దనుకొని మిగతా మీసాన్ని కూడ శుభ్రం చేయించు కొని ముడుపు చెల్లించి బయట పడ్డా!

మీసాన్ని వేలితో చూపి 'వేండ' అంటే 'మీసం వద్దు' అని అర్థం చేసుకొని వుంటా డని నా కప్పుడు తట్టింది. 'సరే! చేసే డేముంది! 'అరవం (అరవమే కాకుండా ఏ భాషైనా కూడ) పూర్తిగా నేర్చుకోందే మాట్లాడ కూడ దని నిశ్చయించుకొని మా అక్క కేం సమాధానం చెప్పాలన్నా అనుకుంటూ ఇల్లు చేరా!

(122-వ శీతీ తరుకాయి)

కావున ఇప్పటినుండి (సెప్టెంబరుకు నాలుగు నెలలున్నాయి) అతిశ్రద్ధగ (అందులోను ఫస్ట్ అండ్ సెకండ్ పార్ట్ పోయినవాళ్ళు) చదివి తప్పక పాసు కావలెను.

మనకు జరిగిన ఈ యపకారమునకు నా తీవ్ర మైన అసమృత్తిని, హృదయపూర్వక మైన సానుభూతిని తెల్పుచు సోదరసోదరిమణులు ఈ విషయమును గూర్చి ఇంకను విపులముగ మాటలాడుదు రని విశ్వసించుచు నెలపు పుచ్చు కొనుచున్నాను—"

సోదరసోదరీమణులారా....

by
'BHANU'

లేదు సుమా, లేదు సుమా, అపజయ మన్నది లేదు సుమా..... 'ఏం రోయ్! బాదాంఘీరు లాగు తాగేస్తున్నావు?'

'ఎబ్బే లేదు రా. మా కాలేజీ అమ్మాయి అవునో కాదో అని చూస్తున్నా. అంతే.'

'అంతే మన అలవాటు గూడ. ఆ! అది సరే గాని రోడ్లో మాట్లాడట మేమిటి? హాటల్లోకి పోదాం పద.'

* * *

ఆ! అన్నట్టు మీ రిజిట్టుమా టేమైంది రా? 'అదంతా ఎందుకు లేరా. పోయిన ఏడు, మరల సెప్టెంబరు, మరల ఇప్పుడు మార్చిలోనూ పోయింది. ఇంట్లోవాళ్ళ చీవాట్లు...మన సేం బాగు లేదు. అంతా నా దురదృష్టం!'

... వేదాంతంలోకి దిగా వన్న మాట. అయితే ఫర్వాలేదు. ఏ అఘాత్యమూ జరగదు. ఫేలై నోళ్ళు చావకుండా హైదరాబాదులో కాపలా కాస్తున్నారట! సరే గాని కాఫీ చల్లారి పోతోంది. తాగు.'

పైకి అలాగన్నా గాని నా మనసు చాల కఠిని పోయింది. నా దసలే మెత్తని హృదయం, ఇది సినిమా అని స్పష్టంగా తెలుస్తున్నా ఒక్కొక్క స్పృడు కంట్లో నీళ్ళొస్తాయి. అంచేత ఈ మధ్య సినిమా చూడటం బొత్తిగా మానేశా—అపజయ మన్నది లేదు సుమా, లేదు సుమా... అని పాడుకొంటూ రోజులలాగు పేపరు విప్పినా—

March 1959 Andhra University B. A. & B.sc Results అన్న అక్షరాలు కనిపించేటప్పటికి నాగుండె తక్కువ ఆగిపోయింది. కండ్లు కనిపించటం మానేశాయి. ఎలాగో నా నంబరు

కోసం వెతికా. నా ముందునంబరు, తరువాత నంబరు ఉన్నాయి కాని నానంబరు గురించ లేదు. కండ్లు పులుముకొని మతీ పరిశీలించా. అసలు నా నంబరు రంటూ ఉంటే గదా అగుపించటానికి!

అప్పటినుండి 'అపజయ మన్నది లేదు సుమా' అని పాడడం మానేశా.

నా హృదయం చాల దుఃఖంతో నిండి పోయింది. ఈ సమయంలో ఈ విశాలాంధ్ర దేశంలో, ఎంతమంది సోదరులు ఎంత దుఃఖిస్తున్నారో! ఫేలై న విద్యార్థులంతా ఒకచోట సమావేశమై తమకు గల్గిన ఈ తీరని బాధను గూర్చి చర్చించి ఒకరి కొకరు సానుభూతి వాక్యాలు పల్కాలి. ఏతత్సమయంబున నిరంతర దుఃఖిదోదూయమానమానసుండ నైన ఏను వల్కెడిక్రమం బెట్టి దనిన—

“ఫేలై న ప్రియమైన సోదరసోదరీమణులారా! మన మందఱము ఆంధ్రులము. (అందుకు సంఘాత ముక్కలేదు.) పూర్వము మన ఆంధ్రజాతి (ఆంధ్ర విజ్ఞానసర్వస్వము మూడవ సంపుటా విష్కరణాసందర్భంలో ఎవరో అన్నట్లు) ఇతి హాసికముగ, సాంస్కృతికముగ ఎంతో ముందడుగు వేసినది. అట్టి సంతతివార మైన మనము ఈ వెధవపరీక్షలలో ఫేలై పోవుట ఎంతయు శోచనీయము!

ఈ యూనివర్సిటీవాళ్ళు (తిట్టడానికి ధైర్యం లేదు లెండి) సమర్థులైన మనలను అసమర్థుల క్రింద జమకట్టిరి. ఇట్టి యవమానకరమైన సంఘటనలను మన మెన్నటికిని సహించ లేము.

(తరువాయి 121-వ పేజీలో చూడుడు)

इन्सानियत

by

M. A. SAMEE, III B.A., BRANCH IV.

“कौन है ?”

“जी....जी....जी मैं ।” अचानक उसकी ओर निर्देशित आवाज़ को सुनकर, चंचल कांप उठी । फिर वह हकलाते हुए बोली ।

रामू : कौन, चंचल ?

चंचल : जी, मैं ।

रामू : कहाँ गयी थी, इतनी रात गये ?

चंचल : मछलियां पकड़ने, समुद्र के किनारे ।

रामू : इतनी देर ? अच्छा, खाना जलदी ला, आज बड़ी मूख लगी है ।

सहसा चंचल के सहमे हुए चेहरे पर उसकी नज़र पड़ी ।

“अरे यह क्या चेहरे पर खराशें और आँचल फटा हुआ ? चंचल जोर से काँपने लगी । “हाँ, हाँ, बोलो, क्या हुआ बोलो ?”

चंचल : जी, मैंने कुछ नहीं किया ।

रामू : तेरा डील-डील बतलाता है कि ज़रूर कुछ दाल में काला है । साफ़ साफ़ बोलती क्यों नहीं, वरना मैं तेरा गला घोट दूँगा ।

चंचल राने लगी । “स्वामी, मैंने कुछ नहीं किया, वह....‘गोरा’....जबदस्ती”

रामू : कौन गोरा ? गोरा ! आज मैं उसका खून करके ही चैन लूँगा ।

यह कहते हुए, वह एक तेज़ छुरा कमर में छिपाता हुआ, बाहर दौड़ पड़ा । चंचल घबराती हुई दौड़

कर उसके पैरों पर गिर पड़ी । “स्वामी ऐसा न कीजिए, स्वामी”, कहकर बिल्विलाने लगी । रामू ने उसको धक्का देकर अलग कर दिया और सरपट दौड़ने लगा । वह पागल की मांति रात के अंधेरे में उसकी नज़रों से गायब हो गया । एक ही क्षण में गुज़रे हुए वाकियात उसके मन में आ गये ।

पांच महीने पहले, वह चंचल से प्रेम करता था । तब उसका ब्याह नहीं हुआ था । मगर चंचल के माता-पिता उसकी शादी गाँव के रईस ‘गोरा’ से करा देना चाहते थे । इसलिए दोनों प्रेमा और प्रेमिका गाँव से निकल पड़े और दूसरे गाँव में जाकर उन्होंने शादी कर ली और उनका जीवन मज़े में कटता था । आज उसके मंगीतर, ‘गोरा’ को यह खबर मिली कि वे जब मगोड़े फलाने गाँव में हैं तो बदला लेने के इरादे से उसी गाँव आया था । रात गये जब चंचल को उसने समुद्र तट पर पाया तो उसने उसकी जबदस्ती अपने बाँहों में जकड़ने की चैष्टा की, तुरंत चंचल ने अपनी पूरी ताकत से उसका नीचे ढकेल कर गिरा दिया । चूँकि गोरा ने शराब पी थी, आसानी से ज़मीन पर बेहोश गिर पड़ा ।

इधर ‘गोरा’ से बदला लेने के विचार स रामू समुद्र के किनारे किनारे भागा जा रहा था । उसी समय कुछ फ़ासिले पर चंद मर्दों के चिल्लाने की आवाज़ सुनाई दी । “बचाओ, नाव डूब रही है ।” तब रामू को ऐसा जान पड़ा मानो किसी ने उसको स्वप्न से जगाया हो । उसकी कल्पनाओं का तार टूट गया और वह भीड़ को चीरते हुए समीप पहुँचा तो

क्या देखता है कि एक किशोरी में एक मनुष्य बैठा हुआ है जिसमें पानी एक दण भर आया है और उसकी यह दशा है कि अब डूबे, तब डूबे। वह मनुष्य किशोरी के बीच में खड़ा होकर “मदद, मदद” चीख रहा है। उस भीड़ में से किसी की भी हिम्मत न होती थी कि पानी में कूद कर उस आदमी को बचावे।

रामु झट से समुद्र में कूद पड़ा और तैरता हुआ समुद्र के बीच में पहुंचा तो नाव डूब चुकी थी और वह अजनबी गोते मार रहा था। समीप जाने पर अजनबी का चेहरा छिटकती चाँदनी में साफ़ साफ़

नज़र आ रहा था। “अरे यह क्या—गोरा—” तुरंत उसके मन में विचार आया कि वापिस लौट जाऊँ, मगर उसकी आत्मा ने उस पर विजय पा ली। नहीं नहा ऐसा हरगिज़ नैहा हो सकता, यह इन्सानियत के खिलाफ़ है। इस समय वह गोरा न था। बल्कि विपत्ति में फँसा एक इन्सान था। इन्सान की मदद करना एक इन्सान का फर्ज था। अतः गोरा किनारे पर लाया गया। बेहोश पड़ा था। भीड़ में के कुछ लोग उसे सचेत करने में लगे थे। लेकिन रामू वहाँ नहीं था।

(Continued from page 125)

गांधीजी के मुख्य उद्देश्य स्वतंत्रता-प्राप्ति और हरिजन-उद्धार थे। वे हरिजनों को प्रेम करते थे और उनको सारा अधिकार दिलाने में सफल हुए। उनका कार्यक्षेत्र संकुचित नहीं रहा लोककल्याण ही उनकी अभिलाषा थी। वे भी अपनी कार्य-पूर्ति के बाद ही इस दुनियाँ से छूट गये।

इन दोनों की सहनशीलता, श्रद्धा, प्रजातंत्र में विश्वास और न्याय में तत्परता आज के नौजवानों के लिए दीप शिखा की भाँति प्रज्वलित होकर उनकी राह पर प्रकाश डालेंगे। लिंकन की घोषणा

और गांधीजी की घोषणा से मिलती-जुलती है :—

“ईश्वर की छत्र-छाया में जनता के द्वारा, जनता के हित के लिए, जनता से सुशासित राज्य पृथ्वी पर कभी नहीं मिटेगा।”

लिंकन और गांधीजी ने जो शब्द व्यक्त किये, वे सभी राष्ट्रों के लिए प्रजातंत्र के आदर्श की परिभाषा बन गये हैं।

महात्मा गांधीजी और लोक-मानव अब्राहम लिंकन के नाम सहस्र सदियों तक गूँज उठें!

गांधीजी और लिंकन

by

K. M. VENKATESAN, P.U.C.

भारतीय इतिहास में महात्मा गांधीजी का नाम जिस प्रकार स्वर्ण अक्षरों से अंकित है उसी प्रकार अमेरिका के इतिहास में अब्रहम लिंकन का नाम चिर प्रज्वलित रहेगा। ये दोनों ही इस युग के महामानव हैं। संसार का यह परम सौभाग्य है कि उसने एक ही समय में इन दो महापुरुषों को जन्म दिया। इन्होंने उठारहवीं सदी को पवित्र बना दिया। दोनों ही युगपुरुष के रूप में इस लोक में अवतीर्ण हुए और अपनी जीवन-व्यापि साधना एवं लोलाओं के द्वारा अपनी जन्मभूमि को धन्य बनाया। दोनों को जीवन-धाराएँ एक की दिशा में प्रवर्तित हुईं उर इनक कर्म-क्षेत्र भी एक ही रहा।

ये महामनव पेशे में सफल वकील थे और फिर राजनैतिक नेता बने। दोनों के जीवन काल संवर्ष में बीता। जैसे लिंकन को पग-पग पर रुकावट दिखाई पड़ी, रास्ते में काँटे बोये गये, वही हालत गांधीजी की भी थी। लेकिन ये लक्ष्य के सुदृढ थे और अपनी मंजिल पहुँच गये। सत्य की जीत हुई।

दोनों समाज-सुधारक थे। जैसे गांधीजी अस्पृश्यता का घोर विरोध करते थे, वैसे ही लिंकन दासप्रथा को मिटाने के काम में लगे रहे। इनकी अभिलाषा दलित मानव समाज को ऊँचा बनाना ही था। इन्होंने दुनियाँ को समानता का पाठ पढ़ाया। इनकी महत्वाकांक्षा निजी क्षेत्र में प्रसिद्ध है।

गोरे लोग काले लोगों को खरीदकर जानवरों की जगह में उनको उपयोग करते देखकर

अब्रहम लिंकन का मन दुख से विकल उठा। उनकी राय में इनसान को जानवर बनाने का अधिकार किसीको नहीं था। इन का लक्ष्य दासता कानाश था। इनकी आत्मा इस पवित्र काम में सफल हुई। लेकिन वे सफल नहीं हुए। जिसके लिए भयंकर कठिनाइयों को सहकर, कठिन परिश्रम करके लक्ष्यपुर्ति के द्वार पर पहुँचकर आगे बढ़नेवाले ही थे कि एक पापी ने उनपर गोली चलायी। उनके मौलिक देहको मिटाने की उसकी इच्छा तो पूरी हुई; लेकिन उनके लक्ष्य, उनकी उपदेश, उनकी आत्मा कब मिटनेवाली हैं?

ऐतिहासिक लेखकों का कहना है कि इतिहास पुरानी घटनाओं को नये रूप देकर फिर से घटित करती है। हाँ, वह सच ही निकल। सुकरात को दुनियाँ ने जो पुरस्कार दिया, जोन आफ आर्क के साथ जिस प्रकार का व्यवहार किया, वैसे ही व्यवहार लिंकन और गांधीजी के जीवन के साथ हुआ।

अमेरिका के राष्ट्रपति वाल्ट विटमन लिंकन की जुदाई पर शोक मनाते हुए विलाप करते हैं — हे मरे नाविक! तुमने अमेरिका रूपी नाव को आंधियों व भीष्म वर्षा के कारण गृह-कलह रूपी समुद्र में चक्कर खाते हुए देखकर खुद को त्याग करके उसको तट पर पहुँचाया। लेकिन अफसोस है कि तुम पहुँच न सके।

(See previous page)

CLASSIFICATION OF ELEMENTS

by

D. RANGANATHAN, II B.Sc, BRANCH VI.

Attempts to classify the element according to their properties have been made from time to time. Old chemists classified the elements into metals and non-metals, based mostly on physical properties. After knowing the chemical properties of the elements, attempts were made to classify the elements according to the similarities and dissimilarities of the properties of the elements.

Prout's hypothesis :

Prout (1815) pointed out that all elements are really built up of H atoms. But accurate At. Wts. by STAS showed that quite a number of elements have fractional At. Wts. and Prout's hypothesis fell into disrepute.

Dobereiner's Law of Triads :

Dobereiner (1829) observed that elements having similar properties can be grouped in sets of three, the atomic weight of the middle one being the approximately Arithmetic mean of the other two. This was found not true in case of most of the elements.

Newland's Law of Octaves :

Newland (1866) pointed out that if the elements were arranged in the ascending order of atomic weights there was not only apparent slip between successive elements, but also the 8th elements starting from the given one is a kind of repetition. But this was not true in case of elements of higher atomic weights, since it was faced with ridicule. But Newland's Law of Octaves contains the great idea, which later on developed in to periodic table.

Lothar Meyer :

Meyer (1869) stated that the elements have a periodic function of atomic volume. Atomic volume being $\frac{\text{Atomic weight}}{\text{Density}}$. But he took in to consideration mainly physical properties only.

Mendeleef's system :

Mendeleef (1869) gave out the full statement of Periodic Law. He constructed a table in which he arranged the elements in the ascending order of their atomic weights. There were number of gaps in the original table of his.

Periodic table as now :

The periodic table consists of seven periods (horizontal rows.)

1st—2 elements.

2nd and 3rd—8 elements (short period).

4th and 5th—18 elements each (long period).

6th—32 elements (long periods) including rare earth elements.

7th—6 naturally occurring elements and 6 elements recently discovered (incomplete period).

The periodic table consists of 9 vertical rows called groups.

1st to 7 groups—Normal groups.

8th group of transitional elements.

0 group of inert gases.

Sub-groups :

Each group is further divided into 2 sub-groups. The elements placed to the right in the column form sub-group B. The elements placed to be left in the column form sub-group A.

General characters of groups :

The elements of the same group resemble each other in properties and electric configuration of their individual atoms. It will be more appropriate to say that the elements of the same sub-group resemble each other. (E.g.) elements of sub-group Ia, etc.—Li, Na, K, Rb,...

resemble one another. On Ag Au.....of sub-group IB resemble each other.

Gradual change of characters :

Both physical and chemical properties of the elements of the same group will show a gradation with increasing atomic weights.

Physical properties :

Colour, M.P., B.P., increases gradually with the increase in atomic weight. Thus F_2 is a pale greenish, yellow gas, M.P.— 232°C . Cl_2 is greenish yellow gas with M.P.— 102°C . and Br_2 deep red liquid with M.P.— 7.3°C . I_2 solid with M.P. 114°C .

Chemical properties :

Though the valencies of the elements remain the same, the reactive nature of elements, either increases or decreases with the increasing atomic weight, (i.e.) increase in case of the elements fall on left side of the table and decreases in case of the elements towards the right side of the periodic table. Reactive nature means, not only the properties of the element alone but the properties of their compounds as well. The action of H_2 on sub-group I-A and the stability of hydrides of F_2 , Cl_2 , and I_2 , clearly brings out the statement.

General characters of the periods :

Elements of both, short and long periods show a gradation in their physical and chemical properties as their atomic weight increases.

M.P. and B.P. gradually increases from group I to group IV reaching a maximum in their group and then gradually decreases reaching minimum in group VII. Simultaneously the metallic character gradually decreasing from group I to group VII. When the typical non-metal occurs. The oxides also show transition I to III distinctly basic becoming Amphoteric in III group and gradually becoming Acidic. Electropositive character also shows a transition. The valence also shows periodicity, value of elements with respect to O_2 in one of the short periods increases from I to VII. (Na, O, Mg, Al_2O_3 .

SiO_2 , P_2O_5 , SO_2 and Cl_2O_7) while with respect to that of H_2 I to IV (NaH , CaH_2 , AlH_3 and SiH_4) and then falls back.

The elements belonging to the 8th sub-group are usually formed as transitional elements. The elements He and Na which are usually called the inert elements are grouped together under one group commonly called the Zero group, as the valence is 0 and they do not form any compound with the rest of the elements in the table.

Advantages of Mendeleef's Table :

(1) It predicted the properties of their unknown elements which hastened the discoveries of elements (e.g.) germanium, gallium, etc. (2) If we know the e.g. weight of the element we can find out the correct atomic weight of the element from the table. (3) The valency can be read from the position of the element. (4) We can correct the doubtful atomic weight for the element like Pt, etc.

Now by the modern conception of the periodic table, we can find out the correct properties of the elements, if the neighbours in the table are known.

Defects of Mendeleef's Table :

1. The position of H_2 which he places with alkali metals and halogens is unknown as it has to be placed in the I group or in the VII group.

2. The occurrence of isotopes of the various elements and their position and periodicity are not explained.

3. The 8th group cannot be called a separate group as it does not exhibit any characteristic properties as their preceding groups. The valency of the elements towards O_2 is not 8 except Asmium.

4. Some similar elements are separated and some dissimilar elements are united. (e.g.) (a) Cu and Hg, silver and thallium and Pb and Ba. (b) Ag with Ca and Mn with Halogens.

5. Anamolous pairs of elements.

(a) Tellurium	Iodine
127.6	128
VI	VII
(b) Argon	K
39.34	39
O	I
(c) Cobalt	Ni
58.94	58.69
VIII	(VII)

If the elements are to be arranged in the increasing order of their atomic weight the positions of the above element have to be reversed.

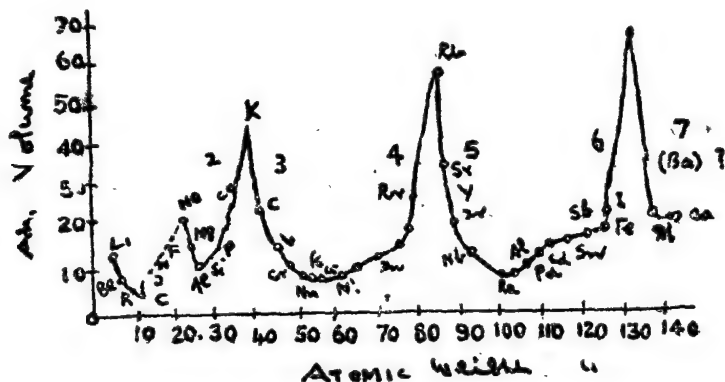
Moseley's Atomic Number :

The above defects led to believe that the position of an element in the periodic table

does not depend on the atomic weight but some other properties of atom to which the atomic weight bears an important connection. Moseley (1911) replaced the periodic law in the following manner. The periodic function of an element as the periodic function of their atomic number of the element which is defined as the number of the square in the periodic table or the number of +vely charged protons in the nucleus of the atom of the element.

Conclusion :

Thus it is possible to explain the defects of the Mendeleef's table on the basis of Moseley's atomic number and the modern atomic structure of elements.



Nursing Habits of Amphibians

by

H. BRASKER, III B.Sc., BRANCH VI.

People usually have a rude idea that only human beings can take care of the young ones, protect and feed them. But deeper studies of the animal kingdom reveal that even animals possess the nursing habits to a remarkable degree. The vertebrates show better parental care than the invertebrates. Right from fishes the nursing habit is seen and it gradually attains the stage of perfection in the mammals. Fish like *Hippocampus guttatus* popularly known as sea horse exhibits a high degree of specialisation. The male uses a part of its body, the brood-pouch on the abdomen as a nest. Amphibians also show parental care to a remarkable degree. In the case of reptiles they lay eggs in a safe place and later look to the welfare of the young ones. Similarly birds and mammals nurse their young ones. Thus we can see that almost all vertebrates show parental care of their young ones and nurse them.

Here in this essay let us confine our attention to the nursing habits found in amphibians. The class amphibia comes under phylum chordata and under sub-phylum vertebrata. This class includes frogs, salamanders and caecilians. Scales are absent in all these animals. Frogs are present in fresh water and are absent in oceanic islands. They have well-developed eyes and ears. Toads are terrestrial and some are arboreal forms, living on trees, like *Hyla arborea*. These are free-living animals. Some like *Dendrobates* secrete poisonous fluids. Toads like *Bufo vulgaris* are not poisonous but spoil the skin of the offender by secretions.

Living amphibians are classified into three orders namely Anura, Urodela and Apoda. The animals that come under the first order Anura, are without tail, with short broad bodies and long hind limbs. This order comprises frogs and toads. Nursing habits

are very common amongst the Anurans. Boulenger had done a lot of work on the various conditions concerning the deposition and care of the eggs, and the following illustrations are from most recent discoveries. In this order there is a toad called mid-wife toad which is common in France and Italy. This carefully collects the string of eggs laid by its mate and carries them wrapped round its hind limbs and then buries the eggs in a hole, on the ground, moistening them now and then and occasionally taking them into the water with it attached to the legs. *Hyla faber* is another tree-frog which builds a nest made of mud near a pond or a lake. After building the mud nest it smoothenes the inner surface of the wall by rubbing the ventral part of its body. After successful completion of the nest, the female lays the eggs in the nest and the parents hide themselves in the neighbourhood of the nursery. Heavy rains may destroy the walls and thus prematurely release the tadpoles. *Leptodactylus ocellatus* also builds a cup shaped puddle about a foot in width, by raising a wall of mud, which separates the inner water from that of the pond. The tadpoles remain in this nursery until the spring rains demolish the nest and set the young ones free. *Leptodactylus mystacinus*, a Brazilian species, is purely terrestrial and never enters water. It digs a cavity, the size of an ordinary tea cup, under stones or rotten trunks, always in the neighbourhood of ponds. The straw-coloured eggs are laid in this cavity and are enveloped in a foamy sticky mass, like well beaten white of an egg. The young tadpoles seem to live on this until they are set free by rain. Similar nursing habits have been recorded of *Leptodactylus albilabris* of Mexico, Cuba and several other West Indian islands. *Pseudophryne australis* and *Pseudophryne bibroni* lay their eggs under stones, or in the debris of weed and grass on

the edge of a pool. The larvae are set free by the rain. In countries where there is daily rain the eggs are laid out of waters. Quite a number of frogs burrow into the ground. In one Japanese species, a pair burrow into the bank of a pond and seal up the entrance to the hole, fill it with the eggs and then make a tunnel opening under the water through which they leave and the tadpoles follow hatching.

Several tropical frogs make their nest usually by sticking few leaves by means of a sticky fluid produced and then lay their eggs in that leaf-nest. Some times their leaf-nests are made to hang over water so that as the tadpoles hatch out of the eggs they may drop into the water. Other such nests are placed so near to water that the hatched tadpoles can safely reach the water. *Chiromantis rofesens*, *Phyllomedusa iheringi* and *Phyllomedusa hypochondrialis* are famous for exhibiting the above kind of nursing habits.

Anthroleptin seychellensis is found by braver to carry nine tadpoles on its back. *Rhacophorus schlegelii* is a Japanese form and it deposits its eggs in soft muddy ground covered with grass and in wet muddy banks of paddy fields, ponds and similar localities near Tokyo. Sometimes the eggs are deposited between the leaves of trees near the ground. The eggs are deposited in those holes and the spots chosen are ten to fifteen centimeters above the surface of the water. The female digs a spherical hole six to nine centimeters wide. Sitting and thus concealed underground, the frogs assume a dark colour and the spawning takes place during nights where upon the female leaves the nest. The eggs are enclosed by a mass of air bubbles. The arboreal frogs have a peculiar mode of nursing the young and taking care of the eggs. These lay their eggs in a foamy mass on the margins of ponds. The female of the *Rhacophorus reticulatus* of Ceylon attaches eggs about twenty in number to the under surface of the belly; what becomes to the tadpoles is not known. *Pipa pipa* is a spectacular object to the zoologist on account of its unique breeding habits. Bartlett has observed that during spawning, the oviduct of the female is protruded from her body more than an inch in length and the bladder like protrusion being retroverted, passed under the belly of the male on to her own back. The male appears to press the bladder and thereby squeeze the eggs out of the sac one by one and the eggs are spread with nearly

uniform smoothness over the whole surface of the back of the female to which they become firmly adherent. In the female the stain of the back forms growths for the reception of the eggs, and in these the young undergoes its whole metamorphosis. In the case of *Nototrema marsupeatum*, the young ones are stored in the dorsal pouch and they leave the dorsal pouch to complete their metamorphosis in water. In most of the *Nototrema* and in *Hyla gloelir*, the eggs are carried on the dorsal pouch on the back either exposed or kept in a pouch. In many cases where the eggs are laid out of water, the parents spend many hours hitting the mass with their hind legs until they have enough froth to provide the air needed by the eggs during development. The queerest habits of all are those of a chiban f.og, *Rhynoderma darwini*. The eggs are laid on ground and the males watch the eggs during development until the tadpoles are beginning to wriggle. Then they take them into their buccal cavities, and the young ones are deposited in the vocal sacs. When the tadpoles hatch, the vocal sacs produce a sticky secretion which plays the part of milk. They remain there till the legs have developed. Finally the male apparently with considerable difficulty forces them out of its mouth and the young ones start life on land as usual.

Considering the other two orders, the animals that come under the order Apoda show no limbs with a worm like body possessing pseudo-metamerism. A species called *Ichthyophis glutinosa* nurses the eggs laid by it. These species extend from the foot hills of Himalayas to the Malayan Archipelago and Thailand. The egg mass is laid not in water but in burrows in shallow waters. The female coils herself about the glutinous egg mass to protect the developing young ones. Thus the female takes care of the eggs. Urodeles are amphibious having the tail retained in the adult. Most of them are aquatic and some are terrestrial. Some forms retain the gills even in adult stages called perennibranchiate urodeles. *Desmognathus* is a small brook-dwelling urodele. This is often found in damp woods concealed under loose stones or other shelters. This form is seen protecting its eggs in an under ground burrow and thus exhibits parental care.

Hence it can well be asserted that the class amphibia not only enjoys a significant place in the evolutionary history but also exhibits the remarkable phenomenon of parental care.

What An Interesting Tour It Was!

by

K. RAMAKRISHNA, II B.Sc., BRANCH VI.

It was a sunny evening of the 26th September. The Dhanushkodi passenger, cautiously came to halt at Egmore Railway Station which was its destination. Like freshly hatched butterflies, we jumped on to the platform with colourful palmyra-leaf hats on our heads and in our hands were the palmyra-leaf baskets with their place of origin beautifully inscribed on them. Perhaps these baskets must have given the instantaneous information all about us (I mean the zoological study tour party) to the on lookers of the platform on the day. No sooner we got down from the train than two great feelings—the sad feeling at the thought that the pleasant tour had come to an end, and the happy feeling at the thought of meeting our parents after a successful tour—were clearly seen combating in our faces for an upper-hand. With the mixed feelings in our heart, mechanically we got into our college-bus that was waiting for us in the station for two hours, and dropped at our respective houses. After a short conversation with my parents, I had a long fresh-water bath to my heart's content and immediately after taking a light dinner, I jumped into my bed and had the much needed sleep. I had a sweet dream that night and it came thrice ere it was morning. In the dream, the entire tour in its full form, with all its happy moments and enchanting scenery passed before my mind's eye systematically, thereby allowing me to enjoy the pleasure of the tour a few more times. This stimulated in me the desire to write this brief account of the tour that I had attended during the autumn.

As is the custom, the science department of our college arranged a 'Zoological Study Tour' this year also, to Krusadai Islands, the paradise of the Zoologists, in the Gulf of Mannar. On the bright sunny morning of the

19th September, we all assembled in our college as scheduled, at 9 o'clock sharp with our portable luggage. By 10 o'clock our bus was ready-loaded not only with our bags and baggages but also with cooking-utensils and a full week's provisions. After a silent prayer for a few seconds, for the success of our tour, we got into our bus and were transported to Egmore Station within a few minutes. Our party consisted of—the Head of the department, Prof. G. Madan Mohan Rao, two demonstrators, Kumari Jayalakshmi and Sri Gopala Krishna Reddy, twenty-one students (including three girls), two attenders and a cook. It was nearing 11 o'clock when the Dhanuskodi passenger in which we were destined to travel, came to the platform. We quickly transferred our luggage into the two 'Janata' compartments which were set aside exclusively for us by the kindness of the Railway authorities. Except for the two defunct fans on the ceiling, the compartments were quite comfortable in all other respects. A few minutes later on hearing the whistle of the guard, with an initial speed of a Million-Metres Running Racer, she set off on her journey. To her credit, I should say, that she tried her best to maintain the same standard through out the journey. We satisfied our hunger that afternoon with the deliciously prepared 'Lemon and Thair Sadam' which our cook had prepared in the hostel. After lunch, some of us were engaged in singing and dancing (of course it was a billo-dancing) while others were engaged in Beauty Observing and Novel reading. At about 4 p.m., we reached Villupuram and had a vadai and coffee for our evening tiffin. We had our 'Dinner' at 9 p.m. in Lalgudi, the station that gave us an experience of fasting for the first time. The packets of food bought there were not fit for eating and except

'Sukthanni' nothing was available there at that part of the night. Had we known this, we would have brought with us some more packets of food from the hostel for that night too, or at least we would not have allowed our lunch to digest early, by cutting short our merry-making. Any how we passed that night with hungry stomachs and with disturbed sleep.

On the following day, we reached 'Heroio' Ramnad Station early at 5 a.m. (You may be wondering why I address Ramnad as heroic one. There is a reason for that. It seemed to me that morning, that even the inanimate things spring to life on this soil.) As wolves were enstraining our intestines, we enquired at the station where we could expect our breakfast. We were informed that our train would reach Mandapam at about 6 a.m. where we might get a decent breakfast. Welcoming was the information one by one, we took ourselves to the wash-tub in the lavatory. I was the first to enter it. No sooner had I replaced my soap into the box on the tray after coating my face once, than a sudden and terrible 'Train-quake' occurred which excelled even the Assam Earth-quake of 1950. Taking this as an opportunity, my new Mysore Sandal Wood Soap, jumped out of its container like a fish from an angler's basket; and before I could balance myself and catch it, it made one full-circle skating on the floor of the Lavatory and found its way out through the exit. Furiously I came out of the lavatory to find out the cause for the quake and to be sympathised for my loss by my friends. But to my surprise not a soul was found in the compartment. They were witnessing something along with a crowd of people. Requesting one of my friends to guard our things, I too rushed to the spot and peeped in. I saw two people—one was a railway employee and another a passenger—were found groaning on the platform, the former with his knees dislocated and the latter with two teeth missing. On enquiring, I was told, that the former was filling water-tank of the train and the latter was enjoying his sweet slumber in the upper

berth, whence they both were thrown down from the top as a result of train-shunting. I could not but sympathise with them instead of being sympathised by my friends for my loss. Our train resumed its journey after taking in the thirty-toothed youngman who was given first aid by the railway authorities. After a light breakfast at Mandapam at 7.30 a.m., we reached Pamban, our destination at 9 a.m. We transported our things to a bungalow meant for Tourists on the sea-shore. It was a fine bungalow with three big rooms and good ventilation. We allotted one room exclusively to the four lady members, another one, we utilised just for storing all our goods and the remaining one room was turned into a bath room.

Soon after reaching our bungalow at 10 o'clock, our cook losing no time, prepared and welcomed us to a hot tea, as a preliminary to lunch. We were in such a state of hunger that his very person reminded me of God who fed the wandering Israelites with 'manna.' I quickly took a tumbler full of the 'supposed tea' and though hot, avariciously I sipped a mouthful and to my hell, I found it no better than the Epsom-salt solution which on one occasion I was made to drink by force by my family doctor. On investigation, it was found out that the tea was prepared with the 'supposed well water' which was saltish as sea-water—But I should confess here that except on this occasion, our cook gave us fine dishes throughout our stay on the Islands. After our lunch, we visited Dhanuskodi and its Kodikarai and spent quite a pleasant evening there in the harbour watching the Ceylon boats and the enchanting natural beauty. We returned to our lodge by half past eight and had our dinner. This was followed by a short talk over various subjects during which our professor acquainted us with the next day's programme. After bidding good night to our professor, we spread our beds in the verandah and off went the Petromax lights.

Early in the morning on the following day we got into our 'Collection-Uniforms' and

set forth in boats on our collection voyage to Pamban Bridge. Here, under the bridge, though our Staff-members were turning every stone for specimen quite naturally, yet most of the boys were a bit reserved (though not outwardly) to let their fingers go between the rocks and lift them up. Naturally this will be the case with most people when they are placed in a new environment. At any rate quite a good collection was made under the bridge. On returning to our bungalow, we found Sri N. Radhakrishna Nair, the supervisor of the Marine Biological research station at Krusadai, waiting for us there. He felt very sorry as he could not meet us on the previous day. We had our lunch with him that afternoon. Then we packed our goods and left for Krusadai by launch in two batches. At Krusadai too we had comfortable rest houses to put up and courteous staff of Sri Nair to attend to our needs. From the tide tables, it was found that the low tide was at 9 p.m. So we started for collection at 8 p.m. soon after having our dinner. Almost all of us were armed with battery torches and in addition we carried one bright Petromax-light too. With the help of these and the guidance of Sri Nair, we advanced far into the channel wading through the water in spite of the new moon night and collected a good number of specimens. We went on collecting there, as our eyes went on spotting the animals, till we were forced to rush to the shore by the rapidly increasing tide. It was nearing mid-night when we went to bed to be afresh for the next day's expedition.

On the next morning, the 22nd September, we started off at 8 O'clock to a neighbouring island called Shingle Island by launch. But Sri Reddy—an expert swimmer, with other five swimmers went in a small boat, that was tied to the bulwark of the launch. (this boat was used for conveying the people to the shore from launch when the latter was anchored at a distance from the shallow shore). I had the fortune of being one of those six members in the boat.

Oh! what a pleasant voyage it was! It was really a rare kind of joy that one could get when huge and wild waves toss the boat in all directions. Like a clever human being that adjusts itself to ups and downs of life and moves along with the current of time smoothly, our small boat, humbly surrendered to the wild waves and advanced towards the shore. I prayed to Mathew Arnold to give me inspiration to get the pleasure to the utmost. We finally reached the shore and a bumper collection awaited us there. Our professor cleverly divided our party into three batches—one headed by himself and the rest two batches headed by the two demonstrators. This helped in spreading the three batches to all corners of the island and collecting a large number of specimens such as *Physalia*, *Chiton*, *Ptychodera* and almost all forms of Planarians available in Krusadai Islands and also a new species of *Holothurian*.

On the next day, the 23rd September, we started out, wading through water, on our campaign early at 7 a.m. to another neighbouring island called Pullivasal. There among the coral reefs we had another bumper collection. It was here, they said, that our lady demonstrator came across a baby *Octopus*. She turned a stone for catching an escaping *Nereis*, I believe, when she came across the octopus, and caught it with her fingers but before she could bottle it, it escaped into the water. We had spent quite useful time on the island, collecting and observing the animals in their natural surroundings. Then we visited the *Balanoglossus* point where we saw the characteristic cast of these animals and the entire area was emitting the smell of iodoform.

That was the last day for our camp on the Krusadai Island. That evening unfortunately one of our friends had developed stomach ache which could not be endured by the student. Our professor unsealed the medicine chest that we were having with us and gave him a suitable prescription. Though the medicine was slowly acting, the boy insisted on consult-

ing a doctor, who was available only at Rameshwaram. Knowing the psychology of patients pretty well, especially of students, our professor made necessary arrangements immediately to take the student to Rameshwaram. Mr. Nair and Mr. Reddy, came forward and with the assistance of a few more students, took him to Pamban by launch and from there to Rameshwaram by train. Mr. Nair returned to krusadai while Mr. Reddy with two other students stayed there with the patient. As it was the last night of our camp on the island, 'Bada Khana' was arranged, and there was none who did not feel the absence of Mr. Reddy and other students. After dinner, we had fun and frolic including singing and dancing till late in the night.

On the following day, the 24th September, we left for Rameshwaram early in the morning and reached there the afternoon. After purifying our bodies, in order to purify our hearts, we visited the Holy Temple of Eshwara founded by Sri Rama before launching his crusade against the evil Ravana.

On the next morning, we went on our collection voyage by boats in the sea and engaged a few divers. Mr. Reddy himself took part in diving and collected a number of specimens. Here we were fortunate enough to collect rare specimens which are still awaiting identification in our laboratory. The same evening at 5 p.m. we left for Pamban, and from there, after bidding a farewell to Sri Radhakrishna Nair, with heavy hearts, we left for

Madras by Dhanushkodi passenger. In the sunny evening of the 26th September we reached Madras Egmore Station quite safe. Thus the tour of the Natural Science Department of college was indeed a grand success—how can it be otherwise when the farsighted Prof. Rao himself took up the lead? He is really unmatched in arranging such tours and no mishaps dared come across us, for even the minutest details of the tour were dealt with characteristically.

Twentieth century had made tremendous strides in the advancement of science. One such is Natural Science. This deals with Animal and Plant Kingdoms. It is not confined to the class room only. The study of natural-science is not complete unless we study the animals and plants in their natural environments. So "*Zoological Study Tours*" play an important role in this direction and it is they that actualise the theoretical zoology taught in the class-room. Apart from that such tours not only permit us to study the lower forms of animals but also the higher forms of animals including man. They give us a training as how to move and adjust ourselves in the society. It is impossible to study a human the being from a distance as Campbell said—

"Tis distance lends enchantment to the view,
And robes the mountain in its azure hue."

And finally, the tours relieve the bored hearts of the pent up city dwellers.

Parental Care in Fishes

by

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Parental care is the care taken by the parents of their young ones till they lead an independent life. This is very common among mammals. We come across a primitive type of parental care among some invertebrates where the parents hide their eggs under stones and weeds to ensure safety till the young ones come out. Parental care is met with among fishes also. Here the parents construct nests or carry the eggs in the specialised parts of their body. Both the parents, generally the males take care of the eggs during development.

The Pretty little Darters (*Ethiostominae*) are common fresh water forms of North-America, assemble during the spawning season and the males nest in sands. The females spawn their eggs in the nest which are fertilized by the males which take care to hide the eggs by means of some stones by which they are protected from the enemies. This is a primitive type of parental care. Fresh water cat-fishes exhibit some improvements over the former wherein pebbles are placed over the nests. But both of them take no further interest after it is done.

The sun-fishes (*Centrarchidae*) scoop out shallow and smooth nests leaving a layer of fine sands to which the zygotes adhere. Males take care till the young ones are hatched out. The Cichlids scoop nests among aquatic vegetation and both the parents take care of the eggs. Thick walled smooth nests are formed by *Heterotis* which is an African form.

Gymnarchus, an African form, constructs floating nests with two doorways. The entrance is placed below water while the exit is above the water. The mud-fishes (*Protopterus*) construct nests of weeds and the males alone takes part in nesting and in protecting the eggs. It keeps a current of

water to bathe the eggs. *Lepidosiren*, a common lung-fish of South America, constructs a burrow—like nest about three to five feet in length in swamps. The fertilized eggs placed at the blind end of the nest are guarded by the male which breathes with the help of the blood-red filaments and aerates the water in the nest. *Amia*, a common Bow-fin fish constructs crude circular nests among the aquatic herbs and guards the way to the nest till the young ones are hatched out. Even the young ones hatched out are taken care of by the male carefully. Both the parents of cat-fishes take part in parental care.

Gasterosteus, commonly known as stickle-back, builds nest of weeds. The male is responsible for nesting which takes place before courtship with its mate, the female. The male directs the mate through the front door, who lays her eggs in the nest. The male coming behind her way fertilize the eggs and this is done with many mates till sufficient quantity of eggs are fertilized. It makes sure of the stability and strength of the nest. A current of water is produced by the male to bathe the fertilized eggs. Care increases with the hatching out of young ones from the eggs. The male takes care of them till they are able to lead an efficient independent life.

Betta, a common fighting-fish builds an unusual nest by blowing air bubbles with a sticky mucous which forms a floating nest. The male holds the fertilized eggs by its mouth and places them below the nest, after giving a mucous coating. It replaces the sinking larvae. In the case of paradise-fish (*Macropodus*) a chinese form, both parents take care of young ones.

Bitterling, a small cyprinid shows a remarkable parental care. The female spawns the eggs into the valves of a fresh water

mussel by means of a long tube. The mussel attracts the male which fertilizes the eggs by means of its spermatozoa. In this case the male is sexually excited on seeing the eggs inside the valves of the mussel. Later the eggs are attached to the body of the adults where development occurs.

Many of the Cichlids protect their eggs by carrying them in their mouth. The female takes care even after the hatching of the young ones. The offspring are guarded by both parents while swimming. In the case of the marine cat-fish (Ariidae), common along American coast, the male alone takes part in parental care. It does not even care to take food for its survival and prefers to pass away rather than leaving the nest. The fresh water cat-fish present in Brazil in South America, lies with the eggs and protects till they are hatched out.

The common Sand-glory (*Gobius maritimus*) of England, chooses a suitable shell and turns the concave shell facing upwards which resembles a chamber. This male then constructs a smooth nest with sand grains by means of its tail. The male lump-sucker (*Cyclopterus*) excels all the fishes in parental care. For weeks and even months it stays in the nest aerating the water at intervals. It defends the nest from intruders whether big or small. It immediately takes its position

when removed from the nest or disturbed otherwise.

In the case of Butter-fish (*Pholis*) both parents roll the eggs into a ball, which, one of them guards while the other feeds the former. The male of Kurtus, an Indo-Pacific form possesses a knob-like structure on the head, and the eggs are coiled and bound around it by means of a string. *Arius* produces large eggs which are carried out by the male in its mouth till they are hatched. The males of Pipe-fish (*Syngnathus*) have a broad pouch beneath the tail which opens at its front end; during copulation the eggs pass into the pouch which serves as a nursery for the young ones. The young ones swim near the male and whenever danger is near, they return to the pouches for safety. But this is absent in the case of *Hippocampus*, the sea-horse, where when once the young ones came out of the pouch they cannot enter it again as it is closed. But in this case the young ones are nourished for a long time in the pouch by the male till they become capable of living independently.

Thus we come across many interesting types of parental care among the fishes. A gradual improvement in the process of parental care from primitive type to more interesting, admirable and advanced types has been noticed in fishes. This gives a clue to the evolution of parental care among the vertebrates.

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“Knowledge comes by eyes always open and working hands; and there is no knowledge that is not Power. Do valiantly, and hope confidently and wait patiently.”

—Jereony Taylor.